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URBAN PLANNING RESEARCH GROUP

RESEARCH DIGEST.

# RESEARCH

# DIGEST

Sponsored by the
Urban Planning Research Group

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Department of City and Regional Planning
University of California
Berkeley 4, California

Contents

Contents (continued)

## INTRODUCTION

This first and trial issue of the RESEARCH DIGEST results from the Urban Planning Research Group's October 1953 meeting, chaired by Henry Fagin, at the Detroit ASPO conference. Louis Wetmore is chairman of the Group, but was unable to be present. T. J. Kent, Jr., volunteered the services of the Department of City and Regional Planning, University of California, and Donald Foley found himself temporary editor. On behalf of the Group, the editor wishes to acknowledge the helpful communications from the following persons, who took the time to send information about the research activities of their respective schools or agencies:

Howard K. Menhinick, John A. Parker, F. Stuart Chapin, Jr., Martin Meyerson, Herbert Gans, John W. Dyckman, William L. C. Wheaton, Gerald Breese, C. McKim Norton, Henry Fagin, Louis Wetmore, Reginal Isaacs, Glenn H. Beyer, Arthur T. Row, Jr., Paul M. Reid, T. J. Kent, Jr., Charles R. Dunann, George Duggar, and Marybeth Branaman.

In a number of cases, research projects are in the planning or in the request-for-funds stages; we hope to be able to report on these projects in coming issues. The editor assumes the responsibility for compressing or slightly editing a few of the abstracts.

We realize that there are many projects for which we have no DIGEST entries. Some of these have, for example, already been indicated, at least by title, in the NEWSLETTER ON URBAN PLANNING RESEARCH, the most recent issue of which was distributed by Louis Wetmore in Nov. 1953. Perhaps a somewhat different set of universities and planning agencies can be covered in the future.

## FUTURE ISSUES

Present plans call for a second issue about the first of October, preceding the next ASPO meeting.* To meet this deadline, abstracts must be submitted before September 15, 1954. They should be mailed to Donald Foley, Department of City and Regional Planning, University of California, Berkeley 4, California. It is hoped that at next fall's meeting of the Research Group a new editor for the coming year will volunteer or be selected.

Based on experience in editing this issue and on some suggestions from contributors, it is suggested that in the future, abstracts conform insofar as is feasible, to the following rules (subject to modification by the members of the Research Group):

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* A letter from Louis Wetmore, received after this above proposal for an issue next fall was already in print, suggests the alternative possibility that something along this digest idea might be integrated with the JOURNAL OF THE AMERICAN INSTITUTE OF PLANNERS. This whole matter should be discussed by the Urban Planning Research Group and by other key persons. Further announcement regarding the DIGEST's future will be forthcoming.

1. Each abstract to start with
   TITLE OF PROJECT
   Main investigator(s)
   Status of research and publication (i.e., how far along the research is, when and in what form publication is expected)
   Agency conducting the project, along with sponsoring or cooperating agencies
   (This format was followed in the present issue.)

2. Remainder of abstract to be in paragraph form, with major headings inserted and underlined within that form (as was attempted in the present issue). These major headings should follow this general pattern, subject to such modification as might be desired by contributors.

   Research Problem.

   Previous Relevant Research (if this appears to be important).

   Hypotheses (if any).

   Method of Study.

   Major Findings.

3. Copy to be double spaced and each abstract not to exceed two double spaced pages.

4. Most Master's theses or student reports to be summarized in not over two or three sentences. Doctoral dissertations or particularly important student reports (for example, major group projects) to be reported in greater detail, approaching the format of nonstudent projects. Reports on student theses and reports to be encouraged.

5. Name of contributor to appear at conclusion of abstract and in future issues this to appear, perhaps in parentheses, following each abstract.

It is suggested that the Urban Planning Research Group, at their forthcoming meetings, discuss the desirability and feasibility of continuing the DIGEST, the possible scope of such a DIGEST, and the breadth of audience that is envisioned. Eventually, sponsorship and financing questions might also be faced.

1. LAND USES THAT REQUIRE A CENTRAL BUSINESS DISTRICT LOCATION
Arnall T. Connell
Now being initiated
Thesis, MCP, Georgia Institute of Technology

Problem. To classify land uses according to those which are appropriately located in a city's central business district and those which would be more appropriately located elsewhere. To recommend procedures by which land uses are accordingly appropriately allocated.

2. RAILROAD PROBLEMS IN URBAN PLANNING
Edwin H. Folk, Jr.
Now being initiated
Thesis, MCP, Georgia Institute of Technology

Problem. To evaluate the present and probable future role of railroads as part of an integrated transportation system, especially as related to urban development. To identify planning solutions leading to a railroad network best suited to urban requirements. To suggest means by which plans to this effect may be implemented.

3. PLANNED INDUSTRIAL AREAS
Logan A. McKee, Jr.
Now being initiated
Thesis, MCP, Georgia Institute of Technology

Problem. To study the problems of planned industrial areas, such as might be established in decentralized locations in the years ahead for defense and other reasons.

4. APPLICATION OF SELECTED SOCIOLOGICAL CONCEPTS TO CITY PLANNING
Arthur A. Mendonsa
Now being initiated
Thesis, MCP, Georgia Institute of Technology

Problem. To identify and to develop selected ecological principles and concepts which will contribute to the planner's understanding of community life and its relation to the community planning process.

5. PROBLEMS OF THE CENTRAL BUSINESS DISTRICT
William H. Qualls
Now being initiated
Thesis, MCP, Georgia Institute of Technology

Problem. To identify the problems of the central business district and to determine their nature. To present planning approaches to one or two of the most critical problems.

6. BUILDING HEIGHT AND COVERAGE REGULATIONS IN EGYPT AND THE U. S.
Kamal-Eldin S. Shehayib
Now being initiated
Thesis, MCP, Georgia Institute of Technology

Problem. To study and analyze the zoning and building regulations concerned

with building height and coverage in Egypt and in the U. S. and to determine the extent to which U. S. experience may have useful application in Egypt.

7. SAVANNAH RIVER URBANIZATION STUDY
Stuart F. Chapin, Jr., and others
Completed in June 1953; final report being prepared for publication
Conducted by the Institute for Research in Social Science, University of North Carolina, under contract with the Division of Housing, U. S. Housing and Home Finance Agency

Research Problem. This was a study of urbanization in a predominantly rural area occurring as a result of the building of the Atomic Energy Commission's multi-billion dollar installation in South Carolina.

The broad purpose of this two-year study was (1) to record growth and physical change as it occurred in the affected towns and counties, (2) to observe the steps taken to alleviate the pressures of change and to control and direct change, and (3) to develop from the experiences in this area urbanization guides which appeared to have transfer value for other areas similarly situated in the future. More particularly the study was concerned with the extent and character of population changes, how the new people were housed, how towns, counties and state agencies met demands for expanded community facilities and services, and what planning measures were employed and what measures were needed to alleviate the urgent problems of the area.

Methods of Study. The nature of the original assignment, the size of the area to be studied and the limited staff and financial resources, from the begining dictated an elemental descriptive approach to the research. While controlled research into the dynamics of urban change was not possible, the study offered an unusual opportunity to obtain an overview of urban change telescoped into a relatively short span of time. It also provided a framework for formulating a series of hypotheses to be tested in later controlled studies elsewhere.

Results of the research are based on an integrated series of data collection operations carried forward simultaneously from mid-1951 through the late spring of 1953. One of these was an interviewing operation. Employment, population, housing and limited attitude data were assembled in three separate but related interviewing projects--one a sampling of an evacuation community on the site of the new plant, another focused upon sampling in the seven close-in South Carolina towns surrounding the plant site, and another aimed at sampling the trailer population. A total of 1,291 families were covered in sampling interviews. Data were punched on IBM cards, and selected machine tabulations made for research analysis.

Another major data collection operation involved a series of urban land use surveys. These supplied measures of physical growth and development in communities and provided data on subdivision activity, distribution of new housing, expansion of retail business and service activities and generally the degree of dispersion and concentration occurring in new settlement patterns in relation to the old. Still another project involved a continuing series of traffic surveys. Employing mechanical traffic counting equipment, cordon counts were made at the perimeter of the plant site and around key communities of interviewing activity. These data and a series of manual passenger counts provided a control for population studies and gave a picture of the new traffic patterns created by the building of the AEC plant.

Other continuing data collection activities included an interview coverage of federal, state and local officials in charge of programs in the plant-affected area and interviews with selected civic leaders in the "rim" communities. Structured

interviews were conducted with mayors, city clerks or other officials of towns in the area twice during the two-year period--partly for the purpose of obtaining formal attitudes toward changes occurring in the area and partly to keep tab on expanding or receding influences of the plant construction activity. Continuing informal unstructured interviews with officials of federal, state and private agencies were held throughout the two-year period.

Findings. The changes in the Central Savannah River Area have been dramatic. At the peak of construction in early September 1952, an estimated 65 - 75,000 persons had come into the affected areas of South Carolina and Georgia. Approximately 10,000 families were housed in trailers (population equivalent of roughly 34,000). About 9,000 new housing units were built, some 5,000 acres of open country became built up, and approximately 77 miles of new streets were opened to serve these new developments. More than 5,000 persons resident in the plant area were relocated. Two "new towns" had been founded and boom conditions prevailed, particularly in the form of land speculation, subdivision activity and business expansion. This growth and development in South Carolina occurred without benefit of general town and county plans and adequate planning controls.

Federal aid to the area has been substantial, although some recognized needs were not met because of an insufficient appropriation of funds. As of May 1953 some $18,000,000 of federal funds had been expended for schools, water and sewerage systems, police and fire protection, a hospital addition and access highways. Under special mortgage insurance terms, 3,850 new units of permanent housing were "programmed" and built.

Some of the more general conclusions brought out by the study are as follows. With regard to future family evacuation procedures, a more positive and systematic family removal program utilizing a properly experienced and staffed relocation counseling service is clearly needed.

With respect to future operations of this magnitude involving the building of giant defense installations in rural areas, a national policy on defense housing and community development is long overdue. The oft-repeated pattern of "hit and miss" federal activity in this field indicates that a federal policy and standby legislation are long overdue. Both policy and legislation should aim to define limits of federal, state and local responsibilities in the provision of housing and related community facilities and services, and should provide for the necessary authority and machinery to insure that growth and development occur according to sound principles of town planning and local finance.

8. SOVIET CITY AND REGIONAL PLANNING

Maurice F. Parkins, Research Associate; Alex Peskin, Research Fellow; Barclay Jones Research Assistant; Barbara Forbes, Assistant to the Project Director; and others

Completed September 1952; resulted in a typewritten report, 751 pages, "An Examination of Soviet Theory and Practice in City and Regional Planning," which it is hoped will be published

Conducted by the Institute for Research in Social Science

The Basis of Planning in the Soviet Union. In the Soviet Union, city planning operates within the framework of national and regional socio-economic planning and includes city building. The plan for the development of a new city or the reconstruction of an existing urban area reflects the objectives of national and regional plans and includes a program for construction which is concerned with all aspects of development. Long-range general plans prepared for the development of a specific urban area include the building programs for the physical development of the area as indicated in the long-range socio-economic plans of the region and

country. They include project plans, building plans and working drawings.

The Soviets have been building and reconstructing their cities for the last 35 years. On the basis of state ownership of land, the means of production, and the bulk of urban housing, they have been able to exercise complete control of urban development. After bold experiments, which were not always successful, they have developed highly organized methods and techniques for city and regional planning. Reports of observers indicate that, with a few notable exceptions, their planning theory is well ahead of actual achievement.

Objectives and Use of Material. The objectives of the survey were to study the location, growth, and factors influencing the pattern and extent of urban development in the Soviet Union; to examine the organizational structure of city and regional planning in relation to the general planning structure; to determine the scope of city and regional planning; to set forth the methods and techniques used in establishing the design requirements for the various aspects of city and regional plans; and to discover the nature and interrelationships of the city planning profession.

Method of Data Collection and Analysis. The greater part of the material for the study was gathered from Soviet publications, including textbooks, manuals, surveys, and magazine and newspaper articles. The Russian collections in New York and Cambridge were consulted. The major source of material, however, was the Library of Congress. Much valuable information was obtained from articles which were photostated and microfilmed. A number of Soviet professional and technical journals and newspapers were obtained by direct subscription. In addition to these Soviet publications, a number of articles have been published in English during the past thirty years by observers and students of the Soviet Union.

The basic source for materials was "An Interpretative Bibliography on Soviet Planning" which had been prepared at Harvard's Russian Research Center by Mr. Parkins before he joined the Institute staff.

All Soviet data are highly dogmatic and questionable as to reliability. Hence they required cautious treatment, reading between the lines, and a knowledge of the Russian background. It is believed, however, that the research team uncovered sufficient official data to present a reasonably accurate picture of the main features of Soviet city and regional planning theory.

Findings.

1. The Soviet national planning program has had a profound effect on city development. It determines the pattern of distribution, and the location, size, and character of major industries. This provides the Soviet city planner with data he needs to estimate the required area for the industrial zone and gives him a basis on which to determine the area requirements for all land uses in the city. The Five-Year Plans have attempted to place definite limits on the size of cities according to their planned industrial productivity. These plans have predetermined the nature of cities and the growth of their industries; their needs in terms of educational, recreational, cultural and administrative facilities; their population growth, housing demand, and need for public services. Such information provides the Soviet city planner with a specific program on the basis of which he can anticipate the extent, character and timing of urban and regional development.

2. Regional planning in the U.S.S.R. may take in large areas such as the South Crimean shore (618 square miles), or it may be concerned with smaller areas such as a network of small cities, workers' settlements, and other urban centers with a radius of no more than three to six miles. Each regional planning area serves a group of related industrial enterprises.

3. The general plan for the development of a metropolitan area is based on the proposed population and economic development of the city. It provides for a green belt around the community; municipal, industrial, and agricultural enterprises; warehousing and marshalling yards; water supply stations; sewage disposal plants and collective farms which supply dairy and vegetable products to the city.

4. The general plan of a city sets up a program of construction and provides for a rational distribution of the city's territory into zones for residence, industry, transportation, open green spaces, and communal facilities. The execution of the general plan is accomplished by priority stages tied in with the national Five-Year and annual plans.

5. One feature of the general plan of a city is the residential population distribution plan. The residential density selected for a city will influence its size, building coverage, type and height of structures and their location. As a general rule, six residential density zones have been established for Russian cities, depending on the size and character of the community. The density and accompanying height of buildings in these zones decreases in concentric fashion from the center to the periphery of the city.

6. Although observers report that with a few exceptions Soviet urban areas are still in a relatively primitive state of development, the research team was impressed by the progress made to date in developing city and regional planning methods, techniques, and procedures. Sources indicate considerable research activity in the development and use of new building materials, although it is apparent that there is still much to be desired in terms of quality and workmanship

7. Soviet architectural forms are dictated by ideological concepts and centralized control. No new styles or experiments beyond the pseudo-classic style are permitted. The result is a monotonous repetition of uninspired architectural forms throughout the country.

9. URBANIZATION IN METROPOLITAN AREAS AFFECTED BY THE BUILDING OF LARGE INDUSTRIAL PLANTS: A CASE STUDY OF ACCELERATED URBAN GROWTH IN LOWER BUCKS COUNTY

Robert B. Mitchell, Director; Gerald Breese, Field Director in Charge of Research and Reports; and others

Data collection completed July 1953; report to be published in the near future by the Institute for Urban Studies

Conducted by the Institute for Urban Studies, University of Pennsylvania, with the cooperation of the Bureau of Urban Research, Princeton University, under contract with the U. S. Housing and Home Finance Agency

Research Problem. The study attempted to measure the effects of the construction of a very large industrial plant (U.S. Steel Corporation's half-billion-dollar Fairless Works) in a semirural area on the fringe of metropolitan Philadelphia and Trenton. The objective was to develop guides and generalizations about rapid urbanization and industrialization that might be useful to other areas undergoing similar processes in the future. A more specific purpose of the study was to observe and analyze the needs that arise for housing and related services, to record the steps taken to meet these needs, and to develop conclusions and some recommendations as to actions necessary and most effective in creating and preserving a good living environment.

Relation to Previous Research. This study parallels a similar project (Abstract No. 7 above). It also adds to the systematic study of "boom areas" conducted during World War II in Willow Run, Michigan ("Willow Run" by Carr and Sterner); Seneca, Illinois ("The Social History of a War Boom Community" by Havighurst and Morgan); and Norfolk, Virginia ("The Hampton Roads Communities in

World War II", edited by Ronald Marsh).

Hypotheses. The study did not pursue specific hypotheses, but measured the scope and amount of change in various aspects of the area including: Population, Economic Base, Land Use, Housing, Community Facilities, Health and Welfare, Government, and Planning and Development Regulation. Three subsidiary studies were also conducted to elaborate certain elements of the major study. (These are reported below as Abstract Nos. 10, 11 and 12.)

Research Methods. The basic method used in the study was to set up a number of indices which would measure change in the above mentioned subjects, establish a baseline, and then gather data to establish statistical series. Since the area did not have a fact-gathering agency of any kind until 1952, data were gathered from various private and public agencies. For instance, population estimates were made from utilities company records and dwelling unit counts, a generalized land use map was made in the field, and various special surveys were conducted by means of mail questionnaires and interviewing. The various statistical series were then analyzed, comparing them with the base line data (as of 1950) and in some cases with census data from 1930 to 1940, in order to establish trends and note long range changes in the area to which the present boom development could be related.

Findings. Perhaps the most important finding was that many of the changes that have taken place so far are the results of the suburbanization of Philadelphia and Trenton industry and population, rather than the construction of the Fairless Works. The main effect of the Fairless plant construction so far has been to add 6000 people to the labor force, and somewhat fewer to the resident population, (and the consequences of this addition on housing community facilities, etc.) but thus far few other effects have been felt in the area. Despite the development of the steel plant and the two new communities of Levittown and Fairless Hills, over 75% of the Critical Defense Housing Area is still open land, much of it yet unzoned and uncontrolled. Consequently, Lower Bucks County can still direct its own development if a master plan and planning controls can be developed and implemented. Most of the problems in the area concern the provision of public facilities to serve the new population. Since most of that population consists of families with young children, construction of new schools is the major problem. Lack of experience in dealing with boom conditions, anachronistic municipal boundaries, lack of financing and borrowing power, and of necessary enabling legislation, has hampered the efficient provision of these facilities. In some cases, the private developers, pressed by time, have constructed needed facilities.

Evaluation of Study. The study indicated that continued research over at least the next five years would be necessary properly to determine and evaluate the effects of the new developments. More intensive study of the processes of change, and of the role and effectiveness of the planning agencies is also proposed. The significance of the study to urban planning research lies in its contribution to the literature on rapid change, in its measuring the expected and unexpected effects of new industrial and residential developments on an urban fringe area, and its analyzing the social and economic contexts in which planning takes place.

10. LEADERSHIP AND SOCIAL CHANGE: THE REACTIONS OF A SELECTED GROUP TO INDUSTRIALIZATION AND POPULATION INFLUX
Marvin Bressler and Charles Westoff, University of Pennsylvania
To be published in "Social Forces"
Conducted as a special study under the previous study (Abstract No. 9)

Research Problem. Attempt to discover, through interviewing, the attitudes

toward changes in Bucks County on the part of 81 of the top leaders of the area.

Findings. Although some of these leaders looked favorably on the changes in their roles as residents, homeowners or fathers, they favored and supported the changes in their roles as community leaders. Businessmen bankers, lawyers and county government officials were especially favorable, but local government officials, whose workload and troubles were increased manifold by the boom, tended to look more unfavorably on the changes. Some apprehension was felt that the newcomers to the area ( cf. the steel workers) might be different in class, religion, ethnic background, and political attitudes, but the expectation that they would be homeowners determined the generally favorable attitude towards the newcomers.

11. TRAILER PARKS AND TRAILER RESIDENTS IN BUCKS COUNTY CRITICAL DEFENSE HOUSING AREA
Don J. Hager, Princeton University
To be published in forthcoming issue of "Housing Research"
Conducted as a special study under larger urbanization study (Abstract No. 9)

Methods. This study surveyed 15 of the 34 trailer parks which were set up in the area as a result of the new developments. The survey provides data on the nature of the trailer camps, provision of facilities with the camps, characteristics of trailer camp operators, number of trailers, characteristics and attitudes of trailer residents, etc.

Findings. Most of the trailer residents are young families, with young children, who work in construction jobs all over the country, and prefer living in trailers with their families to hunting for housing each time they move, or having to live in rooming houses. Most of them earn high wages, and enjoy trailer living. Their trailers are modern, complete with television, showers, and toilets. Trailer parks are small communities with a strong espirit-de-corps, and an active social life.

12. COMMUNITY ORGANIZATION FOR SOCIAL WELFARE
Hertha Kraus, Bryn Mawr College
Main conclusions to be incorporated in the larger urbanization study (Abstract No. 9); further publication for a social worker audience under consideration.

Research Problem. To report on adult education, health services, family and child welfare services and religion in lower Bucks County, based on observation and interviewing by a consultant professor of social work.

Findings. The study shows the absence of health and welfare facilities in the area before 1950, partly because such facilities are usually associated only with urban areas. Since the new developments, county leaders with the help of professional community workers from neighboring metropolitan communities have begun to set up such facilities and an overall community service organization. Recommendations for planning and implementing further such facilities are also made.

The new communities of Levittown and Fairless Hills have been active in setting up their own adult education and recreation activities, and with the help of the Philadelphia Council of Churches, organizing and building churches.

The study also surveyed citizen participation in community activities generally and found extensive activity in the new communities, although less in the existing ones. A survey of clubs and organizations in the latter showed only a few which had incorporated lectures or discussions on the changes in Lower Bucks County in their meeting programs.

The main conclusions of the study will be incorporated in the main report. Separate publication of data of primary interest to social and community workers is now being considered.

13. ECONOMIC DEVELOPMENT ANALYSIS FOR INDUSTRIAL LAND AND FACILITIES
John W. Dykman and other staff members
Two-year research program just initiated
To be conducted by the Institute for Urban Studies, University of Pennsylvania, under contract with the Philadelphia City Planning Commission.

Purpose of Study. The aim of the study is the determination of land requirements in terms of location, amount, and quality of services needed by the industries which current planning considerations deem most suitable to the future development of the metropolitan area.

Research Problem. The main tasks of the proposed research will be: (1) to examine the extent to which industrial development of various alternative compositions and characteristics might contribute to the total economic development of the area, under varying national economic conditions; and (2) to consider those policies affecting development and locational decisions which will help insure a favorable rate of economic growth, minimize costs of development to the developer and to the community at large, and reduce future dislocation or relocation problems.

Relation to Other Research. This study would be one of a series of research projects into problems of application of research to regional planning in the Philadelphia area. The Institute has, during the past year, developed a proposal for a comprehensive study of the economic future of the region. A detailed program for the first phase of this study was prepared by an economic consultant retained for the purpose. Further, the Institute expects to undertake a continuing series of studies on the growth of the region, and has been developing relationships with specialists in related fields within the University, with private and industrial economists, and with other universities. Thus, the study of industrial development is expected to contribute to a longer range program undertaken with public and private agencies concerned with total regional development.

Research Methods. Design of the research methods to be used in this project is currently in process. At this time, it is not possible to state the particular techniques or sources of information to be employed, or the major hypotheses to be tested.

14. REGIONAL ANALYSIS: STATE SOCIO-ECONOMIC REGION II -- THE TRENTON- CAMDEN METROPOLITAN AREA
Gerald Breese
Being published by the sponsor early in 1954 under the following titles: (1) "Regional Analysis--State Socio-Economic Region II -- The Trenton-Camden Metropolitan Area" and (2) "Basic Data Assembly in Planning for State Socio-Economic Regions" (a supplementary 'how-to' manual for the technician charged with the job of doing the basic work)
Conducted by the Bureau of Urban Research, Princeton University, under the sponsorship of the New Jersey Department of Conservation and Economic Development, Trenton, New Jersey

Research Problem. To prepare a prototype analysis of one of the eight socio-economic regions of New Jersey, showing what types of data are necessary and what steps must be taken in each socio-economic region in preparation for

actual planning and development operations on regional and sub-regional levels. The Trenton-Camden area was used as an example.

Relation of This Study to Previous Relevant Research. Although the state had long ago been divided into these socio-economic regions, virtually no study or planning of them had been undertaken. The limited literature on this subject was carefully reviewed (especially that on regional planning, and the work of Bogue, etc.).

Hypotheses. Centering around the nature of planning for socio-economic regions and the requisites for such planning.

Methods of Data Collection and Analysis. The State department staff was used part-time in the period 1952-1953 to assemble and map, under the direction of the Bureau of Urban Research, the necessary data. These materials were then analyzed by the Bureau and the report prepared. The work involved drawing upon very diverse sources of information, weighing the value of each, and coordinating the whole.

Evaluation. The study has the usual faults of any such job done for a governmental agency that has an over-worked staff. In particular, it is regretable that out-of-state areas closely related to Socio-Economic Region II could be studied only in limited detail. Being a prototype, the intent was to show at least one way in which the analysis of socio-economic regions within a state could be undertaken as a prelude to, and as an integral part of, such regional planning.

5. COMPARATIVE ANALYSIS OF LARGE METROPOLITAN AREAS
Gerald Breese
Study in progress
Bureau of Urban Research, Princeton University

Research Problem. To analyze and compare U. S. and foreign (especially European) metropolitan areas with particular reference to the following points:

(1) the structure of large metropolitan areas
(2) the types and distribution of functional areas within these centers at various periods in their history (i.e., the allocation of land use in cities of different types and at successive stages of their growth)
(3) the daily journey to work and the resultant distribution of daytime population involved in points 1 and 2 above.

The most recent studies somewhat similar to the one described briefly above, but different in many respects, are those by Dickinson on the west European city, and Taylor on urban geography.

6. DAYTIME POPULATION IN CENTRAL BUSINESS DISTRICTS: AN ANALYSIS OF CITIES OF DIFFERENT SIZE
Gerald Breese
Study in progress
Bureau of Urban Research, Princeton University

Research Problem. To ascertain and to attempt to explain the variations among size and characteristics of daytime population in cities of different sizes. One or more cities in different size groups will be compared in an effort to determine what changes are observable along a continuum of cities between 100,000 and a million or more population. The most recent studies related to this subject, some published and some available only in manuscript form, are those by Chapin, Mitchell and Rapkin, Breese, Foley, etc.

17. THE PLANNING OF URBAN HOUSING ENVIRONMENT: SELECTED RESEARCH PROJECTS BASIC TO URBAN HOUSING
Gerald Breese
A complete revision of an earlier manuscript, now in progress
Bureau of Urban Research, Princeton University

18. JOURNEY TO WORK IN NORTHEASTERN UNITED STATES
Glenn Beyer and staff
Study completed; manuscript prepared and being circulated for critical review; probable publication in booklet form during 1954.
Conducted by the Housing Research Center, Cornell University, under contract with the U. S. Housing and Home Finance Agency

Research Problem. To study the patterns of the journey to work in communities of different sizes and different types in the northeastern region of the United States for the purpose of determining any possible implications with reference to both housing in fringe developments and the urban labor supply.

The study has a number of major parts: World War II experience; post-war studies related to the journey to work; studies in three different types of communities in New York State undertaken specifically under this project; and implications and conclusions.

Method. The work under the Housing Research Center was undertaken by specialists jointly in the Department of Regional Planning in the Cornell College of Architecture and the New York State College of Labor and Industrial Relations located at Cornell.

19. HOUSING AND HUMAN VALUES
Glenn H. Beyer and Staff
Study completed; manuscript being revised following preliminary review; publication by Russell Sage Foundation in late 1954 or early 1955
By the Housing Research Center, Cornell University, sponsored by the Russell Sage Foundation

Research Problem. In essence, this is a "housing livability" study. It was hypothesized that if certain social values of families could be met in the housing they obtain, they would be more satisfied with that housing. The study identifies these values.

Method of Study. A unique feature of the study was the fact that social psychologists and architects collaborated. A staff of sociologists and psychologists worked out a theoretical approach to housing livability and their theory was translated and applied by a group of architects. The field study was conducted in Buffalo, N. Y., where 1,000 wives and their husbands were independently interviewed.

20. PRACTICES AND PRECEPTS OF MARKETING PREFABRICATED HOUSES
Housing Research Center, Cornell University, study that has been published by the U. S. Government Printing Office in 1952

Research Problem. To analyze the marketing and distribution problems of the prefabricated housing industry and to set up some principles of marketing for the industry.

21. FARM HOUSING IN THE UNITED STATES
Glenn H. Beyer and staff
To be published as a monograph by John Wiley and Sons late in 1954 or in 1955
Conducted by the Housing Research Center, Cornell University, under sponsorship by the Social Science Research Council in cooperation with the U. S. Bureau of the Census

Research Problem. To provide an interpretation of farm housing data from the 1950 census and to make those data more useful to the public. It will make a number of comparisons between farm housing and urban and rural nonfarm housing.

Of importance to urban researchers is the fact that the study devotes considerable attention to the "open-country" houses occupied by families whose heads commute to an urban area for employment.

22. SEASONAL VARIATIONS IN URBAN TRAFFIC
J. Douglas Carroll, Jr., A. T. Row, Jr., and staff
Study in progress
Conducted by the Detroit Metropolitan Area Traffic Study under sponsorship by Michigan State Highway Department, Wayne County Road Commission, City of Detroit, Detroit Regional Planning Commission and Huron-Clinton Metropolitan Authority in cooperation with W. S. Bureau of Public Roads

Research Problem. To determine seasonal variation, if any, in urban traffic and to devise means by which the figures from a basic study can be seasonally adjusted in the future. In other words, the problem is to devise a procedure by which an origin-destination study can be kept current.

The study proposes to assemble data on urban traffic variation and to work out a seasonal index concept, so that short volume counts can serve as the basis for periodic revisions of traffic figures.

Relation of This Study to Previous Relevant Research. Very little work has been done in seasonal traffic variations in urban areas; most of the work in this field has been carried out by state highway departments in rural areas. It has previously always been done on a count basis and never, to the knowledge of the study staff, by using the home interview technique.

Method of Study. Home interviews were conducted at 3,480 dwelling units during the period August - December, 1953. Re-interviews will be conducted between February and August, 1954.

Traffic counts are being made at 10 permanent stations. From these, seasonal patterns, if they exist, should appear. The permanent stations are estimated to count about 10% of the metropolitan area's vehicle trips. Nine counters will be placed for short periods in other locations to measure traffic flow generated by areas of different land use. These counts can then be compared with those from the permanent stations to determine weekly differences, if any.

23. TRAFFIC DIVERSION TO AN EXPRESSWAY
J. Douglas Carroll, Jr., A. T. Row, Jr., and staff
Study in progress
Conducted by the Detroit Area Traffic Study (see Abstract No. 22 for sponsoring and cooperating agencies)

Research Problem. To develop a basis for assigning traffic to a new express facility. It is planned to relate the following variables to diversion:

(a) Time ratio: the ratio time on expressway to time via the best alternate route
(b) Time differential: the absolute gain or loss in minutes via the expressway compared with the best alternative route
(c) Expressway time: percent of total trip time on expressway
(d) Distance ratio: ratio of distance via expressway to distance via the best alternative route
(e) Length of trip: from origin to destination; on Expressway.
(f) Expressway distance: percent of trip distance on expressway
(g) Ingress distance: distance from origin to expressway
(h) Trip pattern: pattern formed by the spatial relations between the expressway and the origin and destination of a trip

A minor objective is to relate diversion to the following variables (for example, separate time ratio curves by age of driver):
(i) Age of driver
(j) Sex of driver
(k) Trip purpose
(l) Time of day: peak vs. off-peak

A third objective is to develop attitudinal, perceptual and behavioral correlates of expressway usage or non-usage:
(m) Attitudes: reasons for using or not using expressway; attitudes toward speed
(n) Perceptions: comparisons of distance perception with actual facts; comparison of time perception with actual time runs
(o) Behavior: reported maximum speed

Relation of This Study to Previous Relevant Research. Several curves have been developed (see "Traffic Assignment," Highway Research Board, Bulletin 61, Washington, D. C., 1952), based upon a time ratio which indicate that the automobile driver increasingly chooses the express facility over the city street as his time advantage increases and conversely will choose the city street as its time advantage over the expressway increases. By making a study in Detroit, we want to determine the reliability of such a curve for our own planning purposes. Further, we desire to measure, if possible, the effect of certain other factors beyond time *per se*.

Method of Study. Presently it is hoped to develop three independent estimates of diversion to existing local expressways, using:
(a) A special home interview
(b) Roadside interviews on a major expressway
(c) Roadside interviews made at the cordon of road parallel to and including an expressway

Some of the data have already been collected: 3,000 interviews have been made on the John Lodge Expressway; the external study, completed in Oct. 1953, collected data from roadside interviews on the Willow Run Expressway and arterials parallel thereto. In the immediate future 500 households located in strips perpendicular to the Willow Run Expressway will be interviewed.

24. RELATION BETWEEN LAND USE AND TRAFFIC GENERATION
J. Douglas Carroll, Jr., A. T. Row, Jr., and staff
Study in progress
Conducted by the Detroit Area Traffic Study (see Abstract No. 22 for sponsoring and cooperating agencies)

Research Problem. To determine the character and volume of traffic generated by major land use types. It is proposed to develop a set of coefficients which

can be used to project future traffic for zones. Although designed purely for application to the problem of developing a master transportation plan for the Detroit Metropolitan Area, the material should provide some valuable new material in the field of urban planning research.

Relation of This Study to Previous Relevant Research. The only research specifically in this field was done in Philadelphia by Robert Mitchell. This report is not yet available to us.

Method of Study. The traffic data will be available on IBM cards showing the conventional O-D data such as mode of travel, time, trip purpose, and origin and destination by census tract and block, by zone, and by grid coordinates.

Land use data is the basis of zoning for traffic analysis. Ten categories have been used:

Single-family residential
Two-family residential
Multi-family residential
Retail and Office
General business
Light industry
Heavy industry
Parks and open space
Public and quasi-public buildings
Other and unclassified

The study area is divided into six (6) sectors and the Central Business District. The sectors represent areas of development served and/or influenced by a major radial. The sectors are subdivided into units of distance from the City center defined by three (3) mile rings. The resulting unit is then subdivided into land use zones. Thus, analysis can be done by sector, by distance from the city, by land use type. Since the block is the smallest unit that can be used bacause of our methods of coding, it has been necessary to designate the predominant land use in each block. Blocks are then accumulated into zones.

If card space permits, the land use of the block will be punched into each trip card and an income code (median for zone) will be punched into cards with origins or destinations in residential zones.

The purpose of the study is to develop a set of coefficients which can be used to project future traffic for zones. Although designed purely for application to the problem of developing a master transportation plan for the Detroit Metropolitan Area, the material should provide some valuable new material in the field of urban planning research.

25. EMPLOYMENT TRENDS, 1942-1951, IN THE NEW JERSEY-NEW YORK-CONNECTICUT METROPOLITAN REGION
Research completed; report to be published shortly
Conducted by the Regional Plan Association, Inc., New York

Research Problem. For many years the New Jersey-New York-Connecticut Metropolitan Region has been experiencing an increasing suburban growth of business and industry. This growth, often characterized by the word "decentralization", is interpreted in various and sometimes conflicting ways. To some people it means that the central city as well as the older outlying industrial cities are losing economic activity to the relatively undeveloped urban fringe. Other persons, denying that there is real decentralization, believe the central areas have

simply reached a stage of maturity in which their volume of business activity will be maintained at a relatively stable level while future growth will take place immediately adjacent. Still others affirm the growth of both inner and outer areas, but interpret decentralization as the relatively faster development of the more open outlying districts. Which of these ideas is soundest remains to be determined.

Former studies conducted by the Regional Plan Association noted declines in some industries and increases in others. Whether in sum these changes meant net losses or gains for the different areas of the region was not determined because of the lack of comprehensive data. Accordingly, the present study is addressed in part to this aspect of the problem. Besides measuring changes that have occurred, the data developed in this study for the first time enable a general inventory of the current distribution patterns of most kinds of business activity in the region.

Relation to Previous Studies. Previous studies in the New York Metropolitan Region have been based largely on United States Census data and therefore have not covered the entire gamut of employment. This study (for the first time since the publication of the Regional Plan volumes in the late 1920's) presents virtually the entire economy since the employment survey includes forestry and fishing; mining; construction; manufacturing; wholesale and retail trade; transportation, communications and utilities; finance, real estate and insurance; and services.

Hypotheses. Underlying the study is the hypothesis that population distribution and the distribution of many economic activities have an interdependent relation; and that in order to project the future distribution of population throughout a metropolitan area it is necessary to have an understanding of trends in the distribution of employment.

Sources and Methods. The employment estimates in the study are based on data developed by the employment security agencies of the New York and Connecticut State Departments of Labor and the New Jersey State Department of Labor and Industry in connection with the administration of unemployment insurance and employment service operations. A number of adjustments were necessary to eliminate the incomparabilities in the source data and to obtain employment for all firms hiring one or more employees since the covered employment includes only firms employing four or more. The figures were put through all the statistical jumps and hoops we could think up in order to discover what they meant.

Summary of Important Findings. Two outstanding facts are established by the study. First, an enormous volume of business and manufacturing activity was added to the New York Metropolitan Region in recent years. Second, new relationships are emerging among the parts of the region. The age-old concentration of employment in central city areas is slowly but steadily being counterbalanced by substantial numbers of new jobs in the environs. The study shows which things are continuing to seek central locations and which are tending outward.

Evaluation of the Study. As a result of the study, we are convinced that changes are under way sufficiently drastic in their implications for the future planning to warrant more thorough and costly study. Consequently, the next step that we look forward to is another study, more comprehensive in time and coverage, to discover, industry by industry, the locational needs now operating or likely to operate within the next quarter-century; and a forecast of the likely levels of economic activity and future population in the region.

26. THE URBAN GENERAL PLAN: A STUDY OF THE NATURE OF THE URBAN GENERAL PLAN AS DETERMINED BY THE POLITICAL AND TECHNICAL FUNCTIONS THAT THE PLAN IS INTENDED TO PERFORM

T. J. Kent, Jr.
Study in process; to be published in book form
Department of City and Regional Planning, University of California

Research Problem. Ever since 1927 when Secretary of Commerce Herbert Hoover's City Planning Advisory Committee published the Standard City Planning Enabling Act, there has been widespread acceptance of the idea that every city should have a comprehensive general plan that could be used to guide public and private physical development activities. But because of the lack of practical knowledge as to how their basic ideas concerning the duties and powers of the planning agency that they described in the Act would work when put into practice, the members of the committee were unable to define in exact language the functions that the general plan was supposed to perform in municipal government. The Act was not clear enough on this fundamental question to lead to one generally accepted interpretation of the minimum essential elements that the plan should have, in a technical sense. And similarly, the language of the Act was not clear enough to lead to one interpretation of the form that the general plan document should take to best serve its political function as a statement of public policy that could be readily understood and used by the citizen planning commission and city council members in judging the merits of specific capital improvements. As a result of this understandably uncertain situation, there developed, during the period of relatively slow expansion of the field in the fifteen years that followed, the emergence of several different general plan concepts based on different assumptions as to the political and technical functions that the plan should perform.

During the years since the end of World War II a great wealth of practical city planning experience has been gained. Most of the major cities throughout the United States have had permanent and well staffed city planning programs since 1945, and many have succeeded in developing effective general plans to guide their physical development. With the publication of official documents describing these general plans it has now become possible for the first time to compare and evaluate the different concepts that have been employed. Consequently it seems worthwhile for an attempt to be made to discover whether or not the practice of the profession has reached that point at which a generally applicable theory of the functions and nature of the urban general plan can be formulated.

Hypothesis. Anyone familiar with the difficult task of establishing an effective city planning program is aware of the vital necessity of developing in the minds of the city council, the planning commission, and the citizens generally, a clear understanding of exactly what the major elements of the general plan are and how the plan is to be used. And an urgent need for a firm definition the general plan that can be reasonably applied to all urban communities exists in connection with the administration of state and federal public works programs: a steadily increasing number of these programs require the completion of a general plan by each community before individual projects can be financed and constructed. This need can only be satisfied by the members of the city planning profession after they recognize its importance and, based upon their own knowledge and experience, succeed in reaching agreement on a common definition of the functions and nature of the urban general plan. The present study is based on the belief that the profession is now in a position to begin a serious attempt to reach accord on what might eventually become the accepted standard legislative definition of the urban general plan, and it is the purpose of the study to test this belief by submitting a complete description of one interpretation of the functions and nature of the urban general plan to the profession for consideration and debate.

Insofar as there is a formal hypothesis that can be stated in a study of this kind, it might be expressed as follows: First, the political and technical functions that local legislative bodies desire to have the urban general plan perform can be spelled out in definite language and are generally similar in democratic, self-governing urban communities, and second, these general plan functions dictate the essential elements of the plan itself and the content and form of the official general plan document.

Research Methods. Firsthand experience in San Francisco and Berkeley over the past several years is being drawn upon, and major conclusions as to both functions and nature have been and are being tested in graduate student studies and thesis work. A great deal of experimentation is going forward in several city and county planning offices in the metropolitan San Francisco Bay Area. When unusually significant results seem to be obtained, the experience is usually recorded in a graduate student thesis.

An attempt is being made to obtain and comprehend the most significant published urban general plans and to understand the "settings" within which they were developed and are being maintained. A few selected European examples will be studied in 1954-55 and, if feasible, the final statement will include a chapter or appendix on significant differences and similarities between United States and certain European concepts of the functions and nature of the urban general plan.

General plan definitions included in texts, (Local Planning Adm., Bassett, etc.), in existing local, state, and federal legislation, and in regulations (such as the HHFA definition of the "General Community Plan") are being reviewed and considered.

It should be understood, however, that the study is not thought of primarily as a survey or as a research project in the usual sense. Its value in the last analysis will depend on the rightness or wrongness of the author's interpretation of the requirements imposed upon the city planning profession by democratic, self-governing communities.

Summary of Important Findings. The study has thus far led to the conclusion, which seems important, that general plan functions and nature are firmly defined by the requirements of democratic, local self-government, although these requirements are very seldom described in writing, and, therefore, that a standard legislative definition of the urban general plan can be formulated.

Next Steps, Significance, Shortcomings. Work on the study has been underway consciously since January, 1953. A great deal of work was done between 1946 and 1952 in an effort to define the minimum essential elements of the urban general plan from a purely technical point of view. The findings of this work will be incorporated in the study now being made. If the present study is successfully completed and published, it will enable the profession to consider at least one complete description of a suggested standard legislative definition of the urban general plan. And if the profession can finally agree on a common definition, it should make possible the kind of advance that the 1927 Standard City Planning Enabling Act did with respect to the duties and responsibilities of the city planning agency.

The main shortcomings of the study are likely to result from inadequate knowledge of the theories and trends, both desireable and undesireable, of democratic local self government. Also, the study may turn out to reflect a provincial concern with a subject that may appear unimportant to city planners elsewhere. And finally, the initial statement will probably not include a complete survey of historically significant and contemporary general plan definitions,

although it is planned eventually to include such material.

27. INDUSTRIAL ZONING IN THE SAN FRANCISCO BAY AREA
Charles R. Dunann (and Roy S. Cameron, during earlier phases)
Field research and analysis completed; draft prepared; to be released in report form by end of 1954
Conducted by the Department of City and Regional Planning, University of California, sponsored by the San Francisco Bay Area Planning Directors Committee

Research Problem. This study is an attempt (a) to assemble and correlate existing industrial zoning provisions contained in the 205 zoning district definitions of the 70 zoning ordinances in effect in the Bay Area in 1951, (b) to develop a classification system for describing and delineating in a comparable form the overall pattern of districts zoned for industry, and (c) to map the pattern for this metropolitan area according to the classification scheme developed.

For purposes of the study, industrial zoning has been defined to include all zoning for land uses primarily involving the extraction, production, conversion, processing or servicing of goods and materials. All Bay Area commercial zoning districts have been included in the study and classified according to the industrial uses permitted in them. The area of study is that generally defined locally as the metropolitan area, composed of nine counties, containing 70 municipalities, comprising 7,452 square miles, and a 1950 population of approximately 2,650,000. Each of the 79 jurisdictions is responsible for its own zoning legislation.

More specifically, some of the study objectives have been to:

1. Develop a classification system that could be used to define and describe the various types of industrial zoning districts in the Bay Area.
2. Compile lists of industrial uses considered to be of a similar intensity of use, according to the majority of zoning district definitions specifying each of the uses.
3. Map the overall pattern of the classified industrial zoning and its relationship to other types of zoning so that any community in the Bay Area may observe the relationship of its industrial zoning to the overall pattern and to the zoning in any other community.
4. Provide the basic industrial zoning information that would permit an analysis of the relationship between industrial zoning and industrial land use.
5. Ascertain whether the industrial zoning classification system could be modified or adapted for an industrial land use survey in the Bay Area.
6. Ascertain and define problems indicated by this study dealing with or related to zoning that require study in the future.

Research Methods. The 70 zoning ordinances in the Bay Area provided the data. These ordinances contained a total of 205 definitions of zoning districts permitting industry, and a total of 509 industrial use terms. A correlative analysis of the 205 definitions was made according to the industrial use terms they specified in order to establish a set of seven "common-denominator" categories ranging from light to heavy industrial use intensity that could be used to classify and to map each district.

Summary of Important Findings. There is great variation and often considerable ambiguity in the methods of defining uses permitted in industrial zoning districts. Inconsistencies within and among ordinances point up the need for a more rational means of defining the uses for which districts are established. In a large majority of cases a district designated for a given intensity of use

will be defined to permit all uses of lesser intensity, including commercial and residential uses. More recent ordinances indicate a trend to provide mutual protection, especially in not permitting residential uses in heavy industrial districts. One serious problem that faces much of the urban fringe area is the lack of any precise zoning. In some instances there was found to be no zoning, but the usual circumstance is to blanket large areas in an unclassified or interim zoning district which has permitted residences to develop in areas better suited to industry, and vice versa.

28. CHANGING RESIDENTIAL PATTERNS IN METROPOLITAN AREAS

George Duggar and Wayne Daugherty, with the collaboration of Davis McEntire
Most of analysis completed; to be published late in 1954 as one of a series of Census Monographs based on the 1950 Census
Undertaken under sponsorship of the Social Science Research Council's program for "Census Monographs", financed by the U. S. Bureau of the Census and conducted by teams of researchers drawn in part from the Census Bureau and in part from others under personal service contracts with the Council

Research Problem. Can the most generally accepted concepts about the growth and change of residential portions of metropolitan areas be subjected to statistical measurement and analysis, using chiefly the concepts and data from the 1950 Census?

Relation to Previous Research. The leading ideas concerning the growth and change of residential areas, as the authors read them, are largely in the form of ideal types rather than hypotheses. Where they are in the form of hypotheses they have been subjected to empirical study chiefly by reference to maps rather than systematic statistical data, and where studied statistically, chiefly for single metropolitan areas, and without much reference to the possibility that they grow in different ways in different periods. Certain of the theoretical ideas may have been elaborated too much and may have been too vaguely related to the notion of "filtering down" and to a wide range of policy questions. The authors take the concept of "localization" or "concentration" to be common to all the work done so far, and seek to classify different forms of localization and concentration and determine which of them held during the 1940-50 period in metropolitan areas of widely different characteristics.

Hypothesis. That the whole set of ideas about the geographic, dwelling, and occupancy characteristics of new dwellings will be found to hold true in some metropolitan areas but that the metropolitan areas are so different in some characteristics as to require the abandonment of single generalizations in favor of a classification of residential areas, and possibly a classification of metropolitan areas.

Specifically, residential areas of varying percent now will be found to differ systematically in respect to the characteristics which we associate with different kinds of residential construction agencies--public housing, public war housing, tract builders, and small-scale builders. Statistical areas known to be dominated by such building programs will tend to differ most, and metropolitan areas with very large amounts of housing built in one of these ways will tend to differ from other metropolitan areas. The characteristics include value, tenure, and race of occupants.

Data. Primary reliance is placed upon census data by census tract (and groups of enumeration districts outside the tracted area) in three metropolitan areas chosen, among other reasons, for their great differences in size, regional location, site characteristics, economic base and growth rate: San Francisco-Oakland, Atlanta, Flint. Brief study is also made of all 91 metropolitan areas having at

least one city of 100,000. To census data is added measured data on distance from the CBD and on area.

Summary of Findings. The findings are at present incomplete. Some do not lend themselves to summary other than graphic summary, but the finding of perhaps greatest policy significance so far is the frequent failure of the new, outlying dwellings to have values equal to the older, or to the closer-in houses. While more often of better condition, of pure-white occupancy, etc., the new do not seem to have the universally higher values which would justify generalizations such as that central cities have more difficult financial problems than suburban areas.

Evaluation. In terms of future research, the study as developed so far indicates that the statistical measurement of residential localization is not impracticable, and may make possible a valid classification of residential areas and of whole metropolitan areas in terms of the characteristics of their residential areas. The study points to the need for others to try this, again using identical techniques to examine several metropolitan areas.

29. CENTRAL CITY PROPERTY VALUES IN SAN FRANCISCO AND OAKLAND
Paul F. Wendt
Research report recently published by the Highway Research Board as Part 4 of Special Report 11. Available from that agency, $1.35 per copy.
Conducted under the joint sponsorship of the Highway Research Board of the National Research Council, National Academy of Sciences, and the Real Estate Research Program, Bureau of Business and Economic Research, University of California

Research Problem. This study reports on long-term changes in the central business districts of San Francisco and Oakland and changes in downtown property values in these cities from 1920 to 1950. The report is part of a broader investigation of urban decentralization as it has been influenced by transportation and parking factors in the San Francisco Bay Area.

An introductory review of central city land value theory points up the fact that there are conflicting viewpoints on the status of downtown districts, few of them being supported by systematic study. Further, important decisions on public and private investment affecting our central areas are being made on the basis of broad generalizations unsubstantiated by well-organized facts.

Research Method. To measure market value changes in the central city properties of San Francisco and Oakland a sampling technique was employed. The boundaries of the central districts and various sub-districts were determined with the aid of committees appointed by the presidents of the San Francisco and Oakland Real Estate Boards. Sample properties within these areas were then selected by project staff members.

Sales and ownership histories of the properties were then traced and their income and expense trends analyzed. Building cost influences in the downtown areas were studied, and land values (apart from improvements) were estimated over several time intervals.

Important Findings. It was found that the central business districts of San Francisco and Oakland have common characteristics. Both districts have been well-defined in their approximate locations for over a half century. There has been a strong tendency in both cities for the central business district to remain compact, a tendency influenced in large measure by the confluence of major rapid transportation routes at or near the center of the shopping areas. The

study concluded that in San Francisco the improvement of transportation and parking facilities in the vicinity of the central shopping district in recent years has undoubtedly contributed to the strength noted in property values in that area. In Oakland the junction of mass transit routes in the center of the main shopping district appeared to have been an important factor in maintaining values downtown.

Data examined in the study failed to reveal any weakness in the market for centrally located downtown property in San Francisco or Oakland. It was concluded that several factors appear to have acted to hold business and maintain values in the central business districts during recent years. For example, older buildings, which may be fully depreciated on the books of present owners, represent attractive investments to prospective new owners, since tax laws permit new owners to establish depreciation charges based upon purchase prices.

Future Plans. Extension of the project is currently planned for more intensive sampling and extension of the sampling to other cities in the San Francisco Bay Area.

30. HOUSING MARKET STUDY.
Sherman J. Maisel
Study in process
Real Estate Research Program, Bureau of Business and Economic Research, University of California

Research Problem and Method of Study. The first portion of this three-part study deals with real estate market statistics which will be used in the development of a price index and the extent of mortgage and deed activity. Data being collected and analyzed include type of house, age of house, land use, sale prices, and type of deeds. Assessors' and deed recorders' data are being used for San Francisco and the surrounding area. It is contemplated that the method which is being developed will be usable on a national basis.

The second part is concerned with the number of households in an area and will attempt to determine why the number of households has been changing. This is being accomplished by gathering information on which the number of households depends--number of people, age and sex of those persons, rate at which marital status changes, and the amount of doubling of families. This phase is being conducted on a national basis employing Census data.

Part three will answer the question "Who buys houses?" The characteristics of families who buy, their age, number of children, and income are among the data being catalogued. This problem is being studied on a national basis and for California using Federal Reserve data and Census statistics.

31. URBAN GROWTH AND STRUCTURE
Marybeth Branaman
Study in process
Real Estate Research Program, Bureau of Business and Economic Research, University of California

Research Problem and Method of Study. The purpose of this study, now in process under the supervision of Marybeth Branaman, is to provide a physical description of the urban core of the San Francisco Metropolitan Bay Area--namely San Francisco and the urban East Bay--to accompany recent studies of central city land values and trends in economic activity and transportation.

In addition to providing a historical survey of major land use trends in a large metropolitan area, it is hoped that information will be gathered which will permit an evaluation of existing theories of urban growth. Factors which have brought about that growth are being determined, and an attempt is being made to detect those trends which appear likely to shape future growth and structure.

To date, basic land use data have been mapped for the urban East Bay from 1910 to 1950, and information on the economy of this area, industrial development, subdivision activity, etc. has been compiled. The graphic presentation for San Francisco is well along. It is felt that valuable experience in techniques for such analysis and useful information on city growth has been gathered from the project thus far.

32. THE LOCATION OF HEADQUARTERS OFFICES IN THE SAN FRANCISCO BAY AREA
Donald L. Foley
Just started; estimated to be underway until about June 1955
Real Estate Research Program, Bureau of Business and Economic Research, University of California

Research Problem and Method of Study. This study is designed to enhance the understanding of the spatial organization of the San Francisco Bay Area in particular and of metropolitan areas in general. Major emphasis will be placed on analyzing the locations of Bay Area headquarters offices controlling the operations of large business, industrial, governmental and other organizations within the nine-county Bay Area. The single most important question to be asked will be regarding the concentrative and the dispersive forces that influence where a large organization will locate its headquarters office within the Bay Area.

The study will combine an initial extensive survey, designed to identify and to inventory certain features of all of the 1,000 or so large organizations in the area, with a subsequent intensive study of a few selected headquarters offices (particularly in downtown San Francisco) so as to analyze the spatial linkages that make their locations appear as optimal to their executives.

33. CHANGES IN LOCATIONAL PATTERNS OF SELECTED ECONOMIC ACTIVITIES IN SAN FRANCISCO-OAKLAND AND LOS ANGELES METROPOLITAN AREA CITIES
David A. Revzan
Study is nearing completion
Real Estate Research Program, Bureau of Business and Economic Research, University of California

Research Problem and Method of Study. This is a study of locational change of various types of businesses. It is based on analysis of classified directories. In general, the analysis involves two phases: (1) Addresses of firms are listed as of a given time and then spotted on maps by classification of business. (2) The growth of business areas is analyzed by type of business.

# RESEARCH

# DIGEST

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Urban Planning Research Group

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Berkeley 4, California

Contents

Contents (continued)

EDITORIAL NOTES

On behalf of the Urban Planning Research Group, sponsors of this RESEARCH DIGEST, and the Department of City and Regional Planning, University of California, with editorial responsibility for the calendar year, 1954, the editor extends his hearty thanks to the various persons who have generously communicated abstracts or items of information. In this issue, the initials of contributors follow each abstract.

* * * * * *

It was agreed earlier this year that primary responsibility for editing this DIGEST or for working out an appropriate equivalent communication medium during the coming year would go to the University of Pennsylvania and, particularly, to Martin Meyerson. Since he has also become Research Editor for the JOURNAL OF THE AMERICAN INSTITUTE OF PLANNERS he is in a position to explore various alternatives. A letter from Meyerson dated September 9 (which most of you have undoubtedly also received) suggests that a special session "for the faculty members in the city planning schools and for related research personnel" be held in the library of the Fine Arts Building, University of Pennsylvania, at 10 A. M., Sunday, Sept. 26, preceding the ASPO meetings. He proposes that joint educational problems be treated during the morning and, following Louis Wetmore's suggestion, that joint research problems be discussed in the afternoon.

* * * * * *

A letter from Glenn H. Beyer, Housing Research Center, Cornell University, following the issuance of our first issue, informs us that the "Glenn Beyer and staff" authorships were in error. We regret the error, and are pleased to list the correct authors here:

Abstract 18 (p. 12) Journey to Work in Northeastern United States, co-directed by Thomas W. Mackesey, Dean of the College of Architecture, and Leonard Adams, Director of Research in the New York State College of Industrial and Labor Relations.

Abstract 19 (p. 12) Housing and Human Values, co-directed by Thomas W. Mackesey and Glenn H. Beyer.

Abstract 20 (p. 13) Practices and Precepts of Marketing Prefabricated Houses, co-directed by Glenn H. Beyer and James W. Partner, formerly assistant professor of Marketing in the School of Business and Public Administration.

Abstract 21 (p. 13) Farm Housing in the United States, Glenn H. Beyer assisted by J. Hugh Rose, U. S. Bureau of the Census.

* * * * * *

Dennis O'Harrow has informed us that ASPO has received "a long list of thesis titles prepared by Eleanor Belling for the Federation of Student Planning Organizations. This list is intended to bring up to date the list of thesis titles that ASPO published back in 1949." It is assumed that this will be published in the near future by ASPO. This will supplement our rather meager reporting of recent theses.

Donald L. Foley

34. PROCESSES OF CONTROL AND URBAN LIVING
Urban Studies Committee
(F. S. Chapin, Jr., Chairman, Charles E. Agger and Frederic N. Cleaveland (political science); Milton S. Heath and Carolyn Recht (economics); Daniel O. Price (sociology) and John A. Parker and James M. Webb (city and regional planning).
A project of a continuing interdisciplinary program in urban studies. Institute for Research in Social Science, University of North Carolina

Research Problem. In the course of a year's series of seminars this Committee has been in the process of defining an urban studies focal area for research and education in behavioral science. Its initial concern has been in identifying an approach which might serve to relate heretofore randomly developed and uni-disciplinary research activity in the urban studies field and give direction to a multi-disciplinary program in this area on this campus in the future.

The Committee has tentatively identified as a focal area for initial investigation: processes of control and their consequences for urban living patterns. Four sub-areas have been singled out as offering promise for specific research investigations within this general focal area: (1) Controls relating to urban development, (2) trends in urban development subject to control; (3) value systems in relation to development controls; and (4) behavioral patterns in relation to these controls.

Method of Study. Monthly seminars. (FSC)

35. THE PLANNING FUNCTION IN MEDIUM-SIZED CITIES
Seward Weber
Master's thesis, 1952
University of North Carolina, Department of City and Regional Planning

In medium-sized cities with firmly established planning programs the planning agency is usually organized in one of two ways: the staff is attached to the commission; or it is a municipal department, under the chief executive, with certain responsibilities to the commission. This study examines the structure, programs and relationships found in planning programs of both types. A general survey is included of programs in twenty-two selected cities throughout the United States, and a more intensive examination is made of three cities in North Carolina. (JAP)

36. A RE-EXAMINATION OF THE NEIGHBORHOOD THEORY AS A PLANNING CONCEPT
Shoji Maruyama
Master's thesis, 1953
University of North Carolina, Department of City and Regional Planning

This thesis examines the many controversial aspects of the neighborhood theory and finds little substantial relations between the criticisms and the Neighborhood Unit as a physical plan. It concludes that the basic plan concepts of the Neighborhood Unit are sound, and that many of the aspects that have given rise to controversy are peripheral. (JAP)

37. A METHOD FOR RELATING POPULATION DISTRIBUTION TO A CHANGING ECONOMIC STRUCTURE
Michael Cabot
Master's thesis, 1953
University of North Carolina, Department of City and Regional Planning

This thesis develops a method for forecasting the future population of local areas aimed at relating population forecasts to regional and national economic trends. Using previously prepared estimates of the future production of the nation, it determines how this production may be expected to be apportioned among the various regions and finally to the local area for which a forecast is wanted. Then utilizing estimates of future output per worker on a successively national, regional and local basis, it apportions estimates of future national employment to the several regions and finally to the local area of interest. It finally expands these estimates of future employment in the locality being studied into population estimates. (FSC)

38. SELECTED PLANNING AND DEVELOPMENT PROBLEMS OF RURAL AREAS EXPERIENCING INDUSTRIALIZATION AND RAPID URBANIZATION
John C. Gould
Master's thesis, 1953
University of North Carolina, Department of City and Regional Planning

Identification and description of major problems which may be expected to arise when large-scale industrial operations are located in predominantly rural areas. The thesis is based upon two years of field investigation of activities in the area of the Atomic Energy Commission's Savannah River Plant. (JAP)

39. TECHNIQUES FOR ANALYZING THE MAKE-UP AND VITALITY OF THE URBAN ECONOMY
Franklin B. Skrivanek
Master's thesis, 1954
University of North Carolina, Department of City and Regional Planning

Many new techniques for analyzing the urban economy have been developed in recent years. Most of the new ones are not ready for general use because the necessary data are not available. An evaluation of these techniques proves difficult for lack of a theoretical frame of reference. However, the thesis summarizes available techniques for describing the make-up of the urban economy and the general economic health of an urban area. It concludes that a fully satisfactory evaluation of these techniques cannot be made until a rigorously tested theoretical framework for urban economic studies is developed. (FSC)

40. ASPECTS OF THE URBAN SOUTHEAST: AS RELATED TO CITY GROWTH, DEVELOPMENT AND PLANNING
Martin J. Rody
Master's thesis, 1954
University of North Carolina, Department of City and Regional Planning

The Southeast is increasing in urban population twice as rapidly as the total population of the region and twice as rapidly as the nation's urban population. The counties with urban populations in excess of 50,000 increased most rapidly over this period. This phenomenon led the author to believe that an emphasis on county planning, rather than city planning, was needed. (JAP)

41. ANALYSIS OF A REGIONAL ECONOMY: THE ROLE OF HYDRO-ELECTRIC POWER IN THE DEVELOPMENT OF THE PACIFIC NORTHWEST
Harry S. Coblentz
Master's thesis, 1954
University of North Carolina, Department of City and Regional Planning

The planner is concerned with knowing how his city stands in relation to the region. He does not have the time or resources to make a full economic base study of the region, but needs to have an adequate description of changes, trends and developments in the region. This study proposes an analytical tool--the use of a public utility (which in itself has been responsible for change) as an indicator of regional economy. Hydro-electric power is the utility selected to describe the Pacific Northwest Region in terms of its economic life, and to show the efficacy of such a method of analysis. (JAP)

42. A PRELIMINARY DEFINITION OF THE THEORY AND USE OF "GREEN BELTS" AND "COUNTRY BELTS" TO DELIMIT THE SIZE OF URBAN AREAS
Mary G. McLean
Master's thesis, 1952
University of North Carolina, Department of City and Regional Planning

If cities are to be limited in size, then the physical entity which marks their limits must be non-urban. The green circumscription, an annular piece of rural land which delimits the size of the urban area it surrounds and provides amenities and produce, is the emergent device. In Great Britain the use of green circumscriptions is supported by law. In the United States concern over urban size is currently augmented by strategical considerations, but the green circumscription is still a nebulous concept. (JAP)

43. EASTWICK HOUSING MARKET ANALYSIS
W. L. C. Wheaton, University of Pennsylvania; Ernest M. Fisher, Chester Rapkin, Louis Winnick, Columbia University
Present work program provides for the design of a project to analyze the market for housing in the Philadelphia area with emphasis upon the market for 12,000 homes in the Eastwick development area.
Project is sponsored by the Philadelphia Redevelopment Authority and is being carried on by the Institute for Urban Studies, University of Pennsylvania with the cooperation of the Institute for Urban Land Use and Housing Studies of Columbia.

Research Problem. To determine whether housing market analysis theory has been developed to a point where it may be reasonably applied to the specific problem of determining the character of market for a large development involving 3,000 acres and 12,000 homes located within a larger metropolitan market. In the process it will be necessary to analyze the metropolitan market in terms of effective demand, the sub-markets for minority groups, and other competing sub-markets. Since the development period will cover 5 to 10 years a final problem is to develop techniques for long-range demand estimates or methods for annually revised market estimates.

Previous Relevant Research. Project involves a determination of the applicability of the theories of Fisher, Rapkin, Blank, Winnick, Maisel and others to a practical problem in city planning.

Method of Study. Present project is limited to research design. The ultimate research program will involve a variety of researches and techniques. (WLCW)

44. FORECASTING POPULATION FOR THE NEW YORK METROPOLITAN REGION
Henry Fagin and staff
Preliminary forecasts completed, will be published shortly
Regional Plan Association, Inc., New York

Research Problem. To develop and to apply a method for forecasting population for this metropolitan region in the face of very incomplete knowledge of certain key factors.

Major Findings. A preliminary set of forecasts by counties for the twenty-two counties of the New York Metropolitan Region have been produced. (HF-DLF)

45. HOUSING ADEQUACY IN SUBURBAN AREAS
Henry Fagin and staff
Findings to be published in several months
Regional Plan Association, Inc., New York

Research Problem. To study those portions of the metropolitan region which lie outside of the central cities already covered by existing public housing policy and program.

Method of Study. Special tabulations which were purchased from the Bureau of the Census and field interviews were used. (HF-DLF)

46. A COMPARATIVE STUDY OF THE CBDs OF NINE MODERATE SIZED CITIES
Raymond E. Murphy and J. E. Vance, Jr.
The project is completed and the results are being published as three research papers ("Delimiting the CBD"; "A Comparative Study of Nine Central Business Districts"; and "Internal Structure of the CBD") in the July and October, 1954, and the January, 1955, issues of Economic Geography. The three papers bound under single cover, together with a detailed table of land use in each of the nine CBDs and a bibliography, will be available from Economic Geography in January or February, 1955, at $3.00
Conducted at Clark University, School of Geography, under contract with the Geography Branch, Office of Naval Research

Nature of the Project. This project had, as its principal original objective, the development of a standardized method of delimiting the CBD of the American city. To accomplish this end, the central areas of nine, moderate-sized cities were mapped in detail. These cities were Worcester, Mass.; Grand Rapids, Mich.; Salt Lake City, Utah; Tacoma, Wash.; Sacramento, Calif.; Phoenix, Ariz.; Tulsa, Okla.; Mobile, Ala.; and Roanoke, Va.

The project, as it progressed, went much farther than delimitation. The mapping in the nine cities formed the basis for a technique for delimiting CBDs; it also furnished the data for comparisons of the nine CBDs. The purposes and results of the entire project may best be summarized under the titles of the three articles in which the results are summed up.

"Delimiting the CBD". In this, the first article of the series, the technique for delimiting the CBD is presented. This technique is based on land use by blocks. Certain types of establishments--permanent residences, governmental and public buildings, organizational establishments, industrial establishments, wholesaling, vacant buildings, vacant lots, and commercial storage--are considered "non-central business" in character. All others are regarded as

"central business". When a block averages one floor of central business and when 50 per cent or more of the floor space in the block is in central business uses the block is included in the CBD. Blocks that are noncontiguous to the main cluster around the peak land value intersection are excluded; and blocks in such uses as a post office, a city hall, or a park are included if surrounded by, or adjacent to, blocks that meet the other requirements mentioned.

"A Comparative Study of Nine Central Business Districts". This paper begins with a descriptive section in which the character of each CBD and the background for its development are discussed. This is followed by a systematic treatment of the size of the CBD, the shape of the CBD, and land use in the CBD--based upon the work in the nine cities. Among the conclusions are the followings: (1) the size of the CBD is best measured by the total floor space at all levels devoted to "central business" uses. (2) CBD size varies with incorporated city population more closely than with that of the urbanized area or that of the tributary market area of the city. (3) CBD size varies from city to city in proportion to number of employees in commercial activities, as reported by the Census; this relationship is so close that such data might be used to estimate the central business space of a city that had not been mapped. (4) The theoretical outline of the CBD seems best to approximate a quadrate cross; the theoretical shape of the CBD is that of a modified pyramid. (5) Railroads and rivers are important barriers to CBD expansion. This barrier effect, in the modern city, is reflected in a belt of non-central business uses, so that the CBD rarely reaches a railroad or river. These are samples of a list of twenty conclusions or generalizations.

"Internal Structure of the CBD". The third and concluding article of the series deals chiefly with horizontal and vertical variations within the CBD. Charts are used to present, for a succession of belts surrounding the peak land value intersection, the land use at the ground floor level, at the second floor level, and for "upper floors"; and the attempt is made to explain the variations in use on the bases of land values and other factors. A generalized description is given for the CBDs of cities of the size range covered in the project. (REM)

47. THE USE OF AERIAL PHOTOGRAPHS IN THE DELIMITATION OF THE CENTRAL BUSINESS DISTRICT
Marylin C. Kelland
Master's thesis, May 1954
Clark University, School of Geography

To determine the degree to which air photo interpretation could be substituted for field work in outlining the CBD according to the technique proposed by Murphy and Vance (described elsewhere in these abstracts.) Independent analyses of the air photos of the central portions of three cities gave results close enough to the delimitations based on field work to suggest that, ordinarily, the CBD, as determined from air photos, would show a total of plus and minus variations of some 25-30 per cent from that based on field mapping. (REM)

48. THE COINCIDENCE OF CERTAIN TYPES OF ESTABLISHMENTS WITH THE EDGE OF THE CENTRAL BUSINESS DISTRICT
Lane J. Johnson
Master's thesis, May 1954
Clark University, School of Geography

To determine whether certain types of commercial establishments tended to mark the edge of the CBD. As far as could be judged from one city, Worcester,

Mass., the tendency for such concentration is not great, though supermarkets appear to form a fair index of the edge. The general conclusion was that instead of certain types of establishments concentrating at the edge, the boundary is marked by the beginning of the occurrence of certain types which are generally absent from the CBD. (REM)

49. A STUDY OF THE FUNCTION OF MARLBORO, MASS., AS A BREAKING POINT CITY BETWEEN BOSTON AND WORCESTER
William F. Kane, Jr.
Master's thesis, May 1954
Clark University, School of Geography

To determine the special characteristics of Marlboro that reflect its "breaking point" character. Marlboro was found to lie almost exactly at the theoretical breaking point between Boston and Worcester as determined by an application of Reilly's Law of Retail Gravitation. In retail structure, in occupational profile, and in its relatively static population, the city reflects its independence and, at the same time, the fairly even "pull" of the two larger cities. (REM)

50. A RESEARCH PROGRAM IN URBAN RENEWAL
Reginald R. Isaacs, Walter H. Blucher, John M. Ducey and Jack M. Siegel
This report may be made available by A.C.T.I.O.N. late in October or early in November, 1954
Conducted as a joint activity involving various schools and persons under the sponsorship of A.C.T.I.O.N.

Research Problem. This study reports on necessary research on which to base policy and program of A.C.T.I.O.N. in the promotion of urban renewal.

Method of Study. Three kinds of research are proposed for the attention of A.C.T.I.O.N.; research for the reference function, stopgap and immediate research, fundamental and longer-range research. The study is being carried out on a short-term basis by a group of consultants aided by experts and technicians. (RRI)

51. MASTER PLAN FOR THE DEVELOPMENT OF PUERTO RICO PUBLIC HOUSING AND SLUM CLEARANCE
(Student's name not provided. DLF)
Ph.D. thesis now underway, to be completed Post-June, 1955
Harvard University, Department of City Planning and Landscape Architecture

To analyze problems faced by Puerto Rico and their solution through a comprehensive planning and urban renewal program. (RRI)

52. THE PERCEPTUAL FORM OF THE CITY
Gyorgy Kepes and Kevin Lynch
Study now being initiated, to be completed in 1957
Conducted at Massachusetts Institute of Technology, Division of Urban and Regional Studies, under a grant from the Rockefeller Foundation

Research Problem. Study will be made of the form of the city as perceived by the various senses, the eye in particular, and the relation of this perceptual form to the needs and satisfactions of the individual. The objective will

be to suggest criteria and techniques for the design of the urban environment, and to develop methods for expressing and analyzing city form.

Method of Study. The work will be carried forward by an analysis of the existing visual environment in selected parts of the city, studying both the visual elements, their interrelations, and their effect on the observer. Use will be made of motion pictures and sound recordings, among other techniques.

This analysis will be paralleled by design research, adapting visual principles to the scale of the city, and by the development of new design techniques. A series of seminars on the staff level, bringing in leaders from fields other than design and planning, will also be conducted in order to guide, stimulate, and broaden the work.

53. UNITED STATES - PUERTO RICO ECONOMIC RELATIONS
Walter Isard
Research now in second of three years
Conducted at Massachusetts Institute of Technology, sponsored by the University of Puerto Rico

Research Problem. This is a study primarily of economic interrelations of metropolitan regions. The basic research is concerned with:

1. projecting the economic and industrial growth of the major metropolitan regions along the Atlantic seaboard, primarily the Greater New York - Philadelphia - Baltimore complex, and along the Gulf Coast. These are the areas of the Mainland with which Puerto Rico has closest bonds and in which, greatest natural advantage;

2. identifying the input requirements of these metropolitan regions which will increase substantially and which at the same time must be imported from elsewhere;

3. with comparative cost and market area analysis determining from the above input requirements those which could be imported from Puerto Rico, and hence determining the type of export industries for Puerto Rico where substantial development and expansion is economically sound and desirable;

4. attempting a meaningful breakdown of potentially new industrial locations in Puerto Rico by urban-metropolitan region (San Juan, Ponce and Mayaguez) and studying Island industries and service trades whose development should stem from and be induced by the expansion of export industries;

5. presenting recommendations on the establishment and composition of industrial districts in connection with the Federally sponsored urban redevelopment program.

Method of Study. Input-output, linear programming and other techniques are being applied to these economic base and interregional relationship questions.

54. LOCATION FACTORS IN THE PETROCHEMICAL INDUSTRY WITH SPECIAL REFERENCE TO FUTURE EXPANSION IN THE ARKANSAS WHITE-RED RIVER BASINS
Walter Isard, and Eugene W. Schooler
Research and report completed, report to be published shortly by the sponsor.
Conducted at Massachusetts Institute of Technology, sponsored by the Area Development Division, Office of Technical Services, Business and Defense Services, U. S. Department of Commerce.

Research Problem. A study of basic industrial growth potentialities and associated economics development in the Arkansas-White-Red River Basins region--useful as a case study of industrial dispersion and decentralization. Various techniques were applied including linear programming and input-output.

55. GOVERNMENT AND THE DEPRESSED AREA: A STUDY OF SOUTHERN ILLINOIS
Melvin R. Levin
Doctoral dissertation, submitted to the faculty of the Committee on Research and Education in Planning
Conducted at the University of Chicago, under the sponsorship of the Illinois Public Aid Commission.

Research Problem. Southern Illinois is a sixteen county area in southernmost Illinois with a population of approximately 350,000 (about one-third urban). The area's dependency rates are much higher than the state average.

Marginal low-return farming and declining coal employment are the area's chief problems. The object of this study was to analyze trends in the economy and population level in Southern Illinois with a view toward using the foregoing analysis as a tool in the evaluation of government operations as they relate to the various sectors of the economy and to the population level of the area. To suggest realistic methods within the given social and political framework to obtain certain desired goals, e.g., high level employment, reduction of dependency rates, better uses of natural resources.

Method of Study. The study utilized a technique of analysis developed in Puerto Rico by certain faculty members of the Committee on Planning. This technique resembles national planning techniques which emphasize the use of a manpower "budget", and projections of employment, population and income trends, etc.

Government operations were assessed, that is, tested for relevance, as they relate to the principal problems of the area.

Major Findings. It was found that the area's principal economic problems were not likely to be solved without a sharp reduction in the 1950 level of population, that coal and agricultural employment were likely to decrease sharply during the decade 1950-1960, that manufacturing and services employment would probably increase but not sufficiently to fill the vacuum caused by the loss of jobs in the area's former mainstays--farming and mining. Hopes for a considerable increase of local income and employment through expanded touristry, forestry and handicraft industries are likely to prove illusory.

It was found that government capital expenditures and operating programs were in large measure responsible for the fact that a sharper decline in the area's population had not taken place in the period 1930-1950. Capital expenditures, for example, supported anywhere from a third to a half of the Southern Illinois construction workers. Covernment operating programs, unlike capital

programs, tended to be state or national in scope. The latter, while contributing to maintenance of the population level and areal economy have nevertheless been effective in reducing population, e.g., selective service, G.I. bill, etc. Government policies were found to be especially deficient in two directions. First, capital expenditures were often wastefully used, and were assigned to the area on the basis of need and political log-rolling and were not fully justified by economic criteria. Second, operating programs were found to have given little attention to certain human problems, for instance these of the marginal farmer and the displaced coal miner. It was found that the politics of the depressed area and the depressed industry are parallel in that the more productive sectors of the national economy were asked (or forced) to subsidize, generally permanently, an industry or area which could not keep pace with technological or other developments. (MRL)

56. THE TAX SYSTEM AND MODERN HOUSING POLICY
George Duggar
Research planned for completion by December, 1954
Conducted within the program of the University of California, Bureau of Public Administration.

Research Problem. To describe opportunities and major problems in advancing the objectives of housing programs through tax change, based on tendencies since the late 1920s.

Hypotheses. (1) The reduction in the relative importance of the property tax has encouraged housing production and consumption in each of several areas of interaction, by reducing instability and inequality of income, and risk and uncertainty; by directly reducing the annual cost of housing relative to other goods; and by encouraging a higher level of local services. The trend has, however, encouraged higher prices of residential properties and the substitute taxes contain new inequities and illogicalities.

(2) Opportunites for integration of housing and tax programs lie in intergovernmental financial arrangements which acknowledge the predominant importance of the national income taxes as sources of federal aids for local services and as capable of offsetting or modifying the more inflexible, regressive, and repressive of state and local taxes, without raising relative prices of housing properties.

Method of Study. Economic theory and statistical materials are used to create models of the several effects of tax change on housing. Classifications of municipal governments are used to show the effect of the property tax on the level and distribution of local services and tax burdens.

Major Findings. The hypotheses are found to be reasonably in accord with the evidence but better statistical materials are required to show the degree of change.

Previous Relevant Research. This study picks up a research project undertaken at the University of Wisconsin in 1947 as part of the Wisconsin Housing Research Project. (GD)

57. ROLE OF THE GENERAL PHYSICAL PLANNING AGENCY IN CALIFORNIA COUNTY GOVERNMENT
John Blayney
Master's thesis, June 1954
University of California, Department of City and Regional Planning

This study examined the past, present, and possible future roles of the county planning agency in California metropolitan areas. It was found that present means of guiding physical development in rapidly growing urban fringe areas are inadequate. County government does not meet the requirements of democratic local self-government; therefore what is urban should be municipal. Metropolitan government is required for effective metropolitan area planning. For the present, county planning legislation, now identical with the city planning enabling law, should be revised to require preparation of (1) a set of assumptions about metropolitan area development, (2) a general plan for each unincorporated community, (3) an outline general plan for each proposed new town, and (4) an outline subregional plan for the entire unincorporated area of the county. (JB)

58. THE VISUAL SURVEY FOR THE PREPARATION OF THE URBAN GENERAL PLAN
Marcel L. Herbert
Master's thesis, June 1954
University of California, Department of City and Regional Planning

This thesis sought to develop a systematized survey method through which knowledge about the existing visual appearance of the city could be obtained. Such knowledge can be used in giving attention to urban aesthetics during the preparation of the general plan. Considerations included were: broad purposes of the survey and anticipated application of the findings; the particular evidence to be recorded; approach to data collection; factors influencing observation--weather, sounds, associative values, etc.; problems of data collection and notation; problems of analysis; utilization of survey material. (MLH)

59. A CASE STUDY OF LAND USE IN SAN FRANCISCO
Roy W. Potter
Master's thesis, June 1954
University of California, Department of City and Regional Planning

Study objectives: First, to ascertain the major variables which have affected land use change over a fifty year period in a delimited area (Telegraph Hill) of San Francisco. Second, to investigate historical factors of influence in the area for a period of one hundred years. Third, to establish a technique for effectively analyzing land use change over time. (RWP)

SUBJECT INDEX--ISSUES 1 AND 2, 1954

Reference is to number of the abstract

Subject index--Issues 1 and 2, 1954 (Cont.)

INDEX TO PERSONS--ISSUES 1 AND 2, 1954

Reference is to number of the abstract

# RESEARCH

# DIGEST

Sponsored by the
Urban Planning Research Group

Vol.2, No.1 April 1955

Prepared and distributed during 1955 by the
Department of City and Regional Planning
University of North Carolina
Chapel Hill, North Carolina

# Contents

EDITORIAL NOTES

Digest Aims. If it is possible to identify the content emphasis of the RESEARCH DIGEST, its founders in all liklihood would agree that its primary focus is upon urban-oriented research, from whatever discipline or field which advances understanding of the growth and development of urban areas and the theory and practice of urban planning. The Digest is intended to be a researcher's medium of exchange and communication in which current research--pending, in progress, or recently completed--is summarized. It reports primarily on the work of faculty researchers or research staffs either university or agency, although it carries a few abstracts of student dissertations and theses where the work is directly related to on-going staff research activities of the institution or is considered by the reporting institution to have significant reference value to others engaged in research.

In general, the Digest carries summaries of studies, projects or programs of both an empirical and theoretical nature and of both a fundamental and applied type where methods and results have transfer value or application in other research. Except where new or improved methods and techniques are involved, operationally oriented surveys, plan studies and similar work dealing with a particular urban area are generally excluded.

Urban Planning Research Group. Sponsors of the Digest is an amorphous group of researchers interested in maintaining lines of communication. They meet once or twice a year for a breakfast or dinner session at meetings of the American Society of Planning Officials or the American Institute of Planners. Louis B. Wetmore of M.I.T. serves as chairman. The group issues a Newsletter from time to time, the chief purpose of which is to report on "rump sessions" for those who were unable to attend. The last such session was held in Philadelphia and the next will probably be held in September at the Montreal meetings of ASPO.

About Digest Volume 2. Under the rotation plan developed by the Urban Planning Research Group in 1953, the editorial responsibilities for RESEARCH DIGEST during 1955 have shifted from Berkeley to Chapel Hill utilizing the services of the Department of City and Regional Planning, University of North Carolina. This is the first of two issues planned furing 1955. Contributions for the next issue should reach your editor by October 31, 1955. They should be mailed to F. Stuart Chapin, Jr., Department of City and Regional Planning, Chapel Hill, North Carolina.

One of the difficulties of operating an enterprise of this kind is that it gets bigger and bigger. It can function on enthusiasm and moral support in its early stages, but as the mailing list grows, expenses mount and different points of view are represented. In preparation for the September meeting in Montreal, your editor would appreciate comments on the following points:

(1) Usefulness of the Digest
(2) Digest editorial policies
(3) Digest circulation
    (a) An expansion policy with subscriptions on a $1 to $2 per year service charge basis
    (b) A restricted distribution policy and continuation of free mailing services
(4) Continuation of rotating editorship vs. a permanent home base under an existing organization, institution or agency.

Your comments are needed. I am asking an ad hoc editorial steering committee to assist in studying this situation, consisting of Don Foley, past editor, Henry Fagin, Martin Meyerson and Louis B. Wetmore.

F. Stuart Chapin, Jr.

1. COMMUTING PATTERNS OF INDUSTRIAL WORKERS: A STUDY OF EXPERIENCE SINCE 1940 IN THE NORTHEAST REGION

Leonard P. Adams and Thomas W. Mackesey

Research report published in 1955 by Housing Research Center of Cornell University, Ithaca, New York. Available from that agency, $2 per copy.

Research forming the basis of report performed pursuant with a contract with Division of Housing Research of the Housing and Home Finance Agency.

Research Problem. To develop better understanding of the commuting problems of industrials workers as an aid in analyzing problems of housing needs, regional planning and labor supply of communities of different sizes and types.

Method of Study. All previous available studies on the commuting problem during World War II and post-war studies were analyzed, and a firsthand field investigation was made in the fall of 1951 in several different-type upstate New York industrial areas.

Major Findings. Some of the implications of journey-to-work patterns are as follows:

1. Journey-to-work patterns are flexible and subject to modification especially under different economic conditions.

2. There is a high degree of interrelationship between three factors (a) manpower problems, (b) transportation, and (c) housing, in the journey-to-work problem.

3. The limitations of a reasonable commuting area are determined by both time and distance. During the war, estimates of the usual time spent, when private transportation was used, ranged from a low of 30 to 35 minutes to a high of 90 minutes. When mass transportation was used the time limits were generally 15 to 20 minutes higher, not necessarily because of greater distance to work but rather because of many stops, transfers and round about routes.

4. During the war, at least two-thirds to three-fourths of thw workers lived within 10 to 15 miles of the war plants at which they worked. In general, about 90 per cent lived in a 20-mile radius. Probably 50 per cent or more relied on automobiles for transportation.

5. Occupation has its influence on commuting patterns: highly skilled workers tended to travel farther than those less skilled during the war. When women were substituted for men the demand for mass transportation invariably increased.

6. Workers in the 20-44 age bracket appeared to travel farther than those under or over those age limits.

7. More men than women commonly were long-distance commuters.

8. In the post-war period, it was found that more than half of the long-distance commuters (more than 20 miles from their jobs) owned their own homes.

9. Less than 10 per cent reported that they operated farms.

10. More than a fourth of the long-distance commuters studied in 21 plants had been working for the same employer for four years or more. On the average, however, the long-distance commuters have lived in their present houses longer than they have held their present job.

11. Little information was found regarding the effect of long-distance commuting on worker efficiency.

12. An attachment to a desirable home is likely to be stronger than an attachment to a particular job, but families will consider moving if it means a better job. (TWM)

2. CITY OF PHILADELPHIA - INDUSTRIAL LAND AND FACILITIES REQUIREMENTS
Britton Harris, Project Director, Sue Smulekoff, Assistant Director, and Staff.
Project initiated July, 1954, to be completed by the end of 1955
Research being conducted by the Institute for Urban Studies, University of Pennsylvania, under the sponsorship of the Philadelphia City Planning Commission.

Research Problem. To estimate probable future (1970-1980) levels of activity in manufacturing industry in the Philadelphia area and the consequent demand for land and facilities for manufacturing.

Previous Relevant Research. Studies of the Philadelphia Plan Commission on land use, economic activity, and industrial patterns in Philadelphia; studies of a related character for the NRPB, Denver, Cincinnati, New York, and other cities; studies in location theory.

Hypotheses. (1) Regional location patterns depend in the long run on basic economic and technical factors which determine ultimately levels of population and income in a given region. (2) The urban "share" in the activity of its region depends in great measure upon planned policy decisions and actions. (3) The pace of technical and locational change is likely to continue accelerating in the near future, requiring imaginative and flexible policy decisions.

Method of Study. (1) Interviews with firms which have moved or expanded within the area; (2) geographic analysis over time of employment distribution; (3) economic trend analysis of overall location patterns of the area relative to the rest of the U. S.; (4) economic projections of future activity; (5) projection of standards for land and facility requirements in the future; (6) policy recommendations based on comparison of estimated future need in the area with existing and forseeable supply of industrial land and facilities in the city. (WLCW)

3. PHILADELPHIA - EASTWICK HOUSING MARKET ANALYSIS
Institute for Urban Studies, University of Pennsylvania (with the cooperation of the Institute for Urban Land Use and Housing Studies, Columbia University).

Project to get under way in the spring of 1955. A statement of project design available for libraries and research institutions concerned with subject, 150 pp.
Previous Digest report: No. 43, Vol. I.

Research Problem. To estimate the market for housing in the metropolitan area over a period of five years and to prepare similar estimates of the potential market on a specific site. To estimate the possibilities of marketing homes for open occupancy on the study site, ultimately to contain 12,000 homes.

Previous Relevant Research. Scattered market analysis reports have been prepared over the years chiefly by the Housing and Home Finance Agency and its predecessors; cf. studies of Hartford, Conn., Atlanta, Ga., Decatur, Ill., Jacksonville, Fla., Miami, Fla., Front Royal, Va., and others. In addition, the FHA has made unpublished studies of most of the metropolitan housing markets in the United States over a period of years. A manual on the FHA method is now in preparation by the New York field office of FHA. In addition to these studies, continuing data series on housing markets have been provided from time to time by such services as the Los Angeles Residential Real Estate Service, the Cleveland Real Property Inventory and the University of Denver Bureau of Business and Social Research. cf. Rapkin, Winnick and Blank, Housing Market Analysis, Division of Housing Research Monograph, Washington, 1953, and the works there cited.

Hypotheses. (1) Refined matrix analysis method will produce reasonably accurate estimates of future housing markets over periods of 12 to 18 months if accurate current data on characteristics of families comprising the household matrix and accurate data on current consumer home purchase and rental intentions can be obtained by field interview; (2) depth interview methods and experience studies can produce attitude scales which will reveal generally the effect upon the market of various arrangements for open occupancy in a particular market sub-area; and (3) the proportion of a metropolitan market which may be attracted to a particular site may be estimated by the use of journey-to-work gradients derived from journey-to-work patterns of employees within the housing market sub-area involved.

Method of Study. The survey will involve three major field surveys (1) a sample census of households in the market area to obtain social and economic characteristics, home purchase intentions, vacancy and occupancy ratios, (2) a sample census of recent home purchasers and renters to obtain social and economic characteristics and attitudes toward open occupancy, and (3) a survey of journey-to-work patterns and home purchase intentions of employees within the sub-market area.

The data collected in these surveys will be used to construct a household matrix and to compute home purchase intention ratios and home purchase performance ratios for the sub-cells of the matrix. Intention and performance ratios will be applied to the computed household matrix for the succeeding year to obtain the anticipated aggregate following-year market. Journey-to-work gradients will be applied to the aggregate market to obtain the market potential available for the specific site. Attitude scales will be applied to the resulting characteristic groups in the matrix to obtain the market for various open occupancy conditions.

In addition to the above major studies, the project will conduct less important surveys of consumer preferences, experience in open occupancy projects, experience in transitional areas, conversion potential, analogous areas, competitive sites and demostatic pressures in the sub-market area, and will maintain current data series on occupancy, vacancy, mortgage market conditions, and the like. (WLCW)

4. THE SPATIAL STRUCTURE OF ECONOMIC DEVELOPMENT IN THE TENNESSEE VALLEY REGION: A STUDY IN REGIONAL PLANNING
John R. P. Friedmann
Ph. D. dissertation
Published as Research Paper No. 1, Program of Education and Research in Planning, The University of Chicago, Chicago, Illinois (March, 1955). Available from that agency, $3 per copy.

Research Problem. To trace the spatial impact of economic development in the Tennessee Valley region and analyze the effect of the emerging spatial structure in the region on the economic progress of rural and urban areas.

Method of Study. Census and other published and unpublished data were used to analyze the effects of distributional changes in employment and population on income, welfare, and the development possibilities of different areas, classified by their degree of urbanization. Economic and distributional trends for the region are projected for the years 1950-75 as the basis for discussion of the implications for developmental planning.

Major Findings. (1) Non-farm employment tends to converge on a limited number of central places within the region. As development approaches the point of a region's full use of local material and unskilled labor resources, industrialization will increasingly involve activities oriented to markets leading, in turn, to a more rapid convergence of manufacturing at central places. Similarly, service industries will increase more rapidly at central places than elsewhere in a region.

(2) For a number of reasons specified in the study, new industries and recent migrant population tend to be dispersed within a radius of one hour's travelling distance from central places.

(3) These inter-related patterns of centralization and dispersion culminate in the emergence of the city region. This may be seen as a form of economic organization composed of functionally and spatially separated activities bound together by transport and communication into a more or less well-integrated economic community. Ten city regions are identified within the boundaries of the Tennessee Valley.

(4) The city region becomes the center of economic development as development progresses to greater emphasis on market-oriented and service employment. But distance from the core affects the rate of economic development for any given area. The very expansion of the city region tends to encourage its further rapid growth. At the same time, these developments tend to limit the economic opportunities of rural and small-town areas, situated less advantageously on the periphery of city regions.

(5) Effects of differential outmigration from peripheral rural areas make it increasingly difficult to undertake the necessary adjustments in agriculture which are made possible by the reduction of population pressure on local resources.

(6) The substantial gap in individual incomes between the inhabitants of the city region and those of rural areas on the periphery is likely to grow larger as economic development in the city region forges ahead, while rural adjustment grows more difficult with rapid outmigration.

(7) The growing emphasis on the city region as the center of economic development results in a shift of development from natural to metropolitan resources such as transportation, space, and community organization. The efficiency with which the city region functions as an integrated economic environment and its potential rate of economic progress depends ultimately on the development of these man-made resources. (HSP)

5. SCIENCE AND TECHNOLOGY FOR WORLD DEVELOPMENT

R. L. Meier, Program of Education and Research in Planning, University of Chicago.

Book to be published by Technology Press and John Wiley late 1955 or early 1956.

Study based upon research carried out over the past six years under various auspices.

Research Problem. How can the new, mainly post-war, science and technology be employed to overcome the well-known neo-Malthusian difficulties? What changes in strategy in economic development, social organization, and urbanization are suggested by these opportunities for areas which are presently non-industrial?

Method of Study. The problems of food supply and resource use encountered by using well established technologies are identified using current international statistics. They fall into two classes; certain foods and certain forms of energy become far too expensive. The long range cost picture for microbiological food production, freed from the soil, and energy production (both solar and atomic) is compared against the needs. The application of science and good design to the consumption patterns of such materials as water, metal, fuel, etc., while achieving adequate levels of comfort and convenience was attempted. For the most promising new technologies new forms of social organization are required, and from these more obvious implications for urbanization, industrial administration, and planning can be deduced.

Major Findings. There are some gaps in present knowledge which make it difficult to outline how densely populated areas with low resource potential can bring their total populations to adequate living levels, although many of the currently publicized problems seem soluble. The principal difficulties facing economic development on a world scale which are amenable to research are:

1. A dollar-a-year birth control technique which can be brought to villages before economic opportunity and before education of the women,

2. The organization of very large urbanizations so as to minimize social costs and congestion,

3. The systematization of self-help housing for new construction in urban areas so that the social costs of industrialization are held to reasonable levels,

4. Modification of dietary habits so as to permit completely new foodstuffs to enter the economy,

and others of more limited character affecting a few special regions. The promise of the current scientific advances related to these difficulties is analysed. (RLM)

6. THE URBAN GENERAL PLAN
T. J. Kent, Jr.
Revised draft of complete manuscript finished in March, 1955; will be circulated for critical review, revised and edited in final form, and published as soon as possible.
Conducted as individual study related to teaching and research work in the Department of City and Regional Planning, University of California, Berkeley.
Previous Digest report: No. 26, Vol. I

Research Problem. To discover if it is possible to develop a firm definition of the minimum essential elements and the major characteristics of the urban general plan in terms of the political and technical functions that the general plan must be designed to serve.

Previous Relevant Research. The work of the 1927 National Citizens Advisory Committee on City Planning and Zoning, as described in the Report containing the Standard City Planning Enabling Act; the work of outstanding city planning commissions during the past 10 years that has resulted in the completion and effective use of technically sound general plans; eight years of experimentation in the San Francisco Bay Area and Northern California by interested members of the profession, as described and documented in official reports and informal memoranda.

Hypothesis. The municipal legislative body is emerging as the single local governmental body with responsibility for guiding and controlling the community environment. In carrying out this responsibility the municipal legislative body needs a general plan. Assuming that a common definition of the political and technical functions of the general plan, as defined from the point of view of the municipal legislative body, can be agreed upon, it will be possible also to reach agreement on a standard legislative definition of the minimum essential elements and major characteristics of the general plan and the official general plan document.

Method of Study. Study and analysis of the trends of local government and contemporary city planning methods and concepts; formulation of a generally applicable theory of general plan functions; testing of a theory of general plan characterisitics and organization designed to serve the previously defined functions in academic studies and, wherever possible, in real situations.

Major Findings. A generally applicable theory of general plan functions, characterisitics, and organization can be defined and tested. The city planning profession should, after further experimentation with the theory defined as a result of this study and with other theories, assume the responsibility for the formulation of a standard legislative definition of the urban general plan. (TJK)

7. EXPERIENCE IN URBAN REAL ESTATE INVESTMENT: AN INTERIM REPORT BASED ON NEW YORK CITY PROPERTIES
Leo Grebler
Scheduled for publication by Columbia University Press in April, 1955.
Institute for Urban Land Use and Housing Studies, Columbia University.

Research Problem. To produce the first long-term record of operating and investment experience for a large number of cases. The book is limited to cases in New York City and is hoped to set the stage for similar studies in other cities.

Previous Relevant Research. Stray data collected by FHA, local agencies and investigators, and rent control authorities. They usually cover too short periods or are based on small numbers of cases and fail to relate earnings to an investment base.

Method of Study. Accounting records for 581 properties were used. Results are given in the form of indexes, operating ratios, and percentage of return on acquisition cost.

Major Findings. The book presents 50 years of investment experience. It traces the changes in the gross income, expenses, and net income from 1900 to 1950 of 312 cases which represent 581 properties. It shows the proportion of gross income going to expenses (including real estate taxes) and what is left over as net income. It analyzes the net return on capital invested in these properties and compares it with net returns on other kinds of investments. It examines the sufficiency or insufficiency of highly fluctuating net incomes for meeting fixed mortgage debt charges--an important consideration concerning financial stability. The data are analyzed separately for various types of property, such as office buildings, walkup apartment houses, elevator apartment houses, and lofts. In a nutshell, the findings are highly unorthodox, that is, they run counter to many prevalent ideas and impressions concerning real estate investment. (LG)

8. CAPITAL FORMATION IN RESIDENTIAL REAL ESTATE: TRENDS AND PROSPECTS
Leo Grebler, Louis Winnick, and David M. Blank
Scheduled for publication by Princeton University Press in late 1955
A joint study of the Institute for Urban Land Use and Housing Studies, Columbia University, and the National Bureau of Economic Research.

Research Problem. To analyze capital formation and its financing in residential real estate, uncover strategic factors determining capital formation in this field, and to assess their bearing on the future course of residential construction. This is part of a larger project dealing with capital growth in the United States.

Previous Relevant Research. Previous research is voluminous but deals mostly with cyclical aspects rather than long-term trends or with selected phases of subject.

Method of Study. Study involves establishment of long-time series of residential construction and mortgage debt, trend analysis, and identification of important influencing factors including, among others, population and household changes, relative price changes, and consumers' attitudes toward housing.

Major Findings. Capital formation in real terms has shown a long-term decline or arrested growth, depending upon whether net or gross is considered. The rate of increase of households has declined, but absolute increments to households have been increasing. Real input per new dwelling unit has declined. Residential construction has become a less important part of gross national product and gross capital formation. There is a strong presumption of a relative displacement of housing in the consumers' scale of preferences. There has been a tendency toward greater use of borrowed funds. (LG)

9. THE UTILIZATION OF AMERICAN HOUSING
Louis Winnick, assisted by Ned Schilling.
Scheduled for publication by John Wiley in 1955.
A study of the Institute for Urban Land Use and Housing studies, Columbia University, financed jointly by the Social Science Research Council and the Bureau of the Census.

Research Problem. To study the major determinants of the persons-per-room ratio and why it changes over time as factors in understanding the demand for housing space.

Previous Relevant Research. Studies of overcrowding made by the U. S. Public Health Service; studies of the relation of housing space to family activity conducted by the John Pierce Foundation, Riemer, Demerath, Beyer, and others.

Method of Study. The primary material is provided by the 1950 Census of Housing tabulations of household size, number of rooms, density groups, income, rent, value, and location. Comparisons with data in 1940 Census of Housing, the Real Property Inventories and the BLS budget studies of 1935-1936 permit analysis of change. Correlations, based on approximately 100 cities, are used to supplement the analysis of Census aggregates.

Major Findings. Household size is the most important determinant of the persons-per-room ratio. Income is of some importance but not as great as generally believed. Households with the lowest income enjoy quite favorable density standards; overcrowding is found most frequently among the moderately poor with large households. The over-all persons-per-room ratio has declined since 1940 because of the relative gain in the number of small households. The evidence is strong, however, that households of a given size are currently occupying fewer rooms than their earlier counterparts. (LG)

10. THE CORE OF THE CITY: A STUDY OF LOCATIONAL RELATIONSHIPS AMONG LAND USES IN URBAN CENTERS
John Rannells
Scheduled for publication by Columbia University Press, spring 1955.
One of a series of studies in dynamics of land use by the Institute for Urban Land Use and Housing Studies, Columbia University.
Field data collected in 1949 for a projection of future need for space in the central business district of Philadelphia are used in the present study, which is to be a companion volume to Urban Traffic: A Function of Land Use by Robert B. Mitchell and Chester Rapkin (New York, Columbia University Press, 1954).

Research Problem. To describe and analyze relationships among patterns of activities and their accommodations in urban centers.

Previous Relevant Research. Primarily, R. M. Haig's Major Economic Factors in Metropolitan Growth and Arrangement (New York, 1927).

Method of Study. Measures are devised for comparing the interlocking location patterns of different kinds of business activity. These measures are stated both graphically, as map diagrams, and numerically, as indexes of concentration, radius of dispersion, etc.

Major Findings. A continual shuffling of activities among locations results in a great diversity of patterns, with, however, some rational arrangement, especially in the tendency for goods-handling activities to locate separately from persons-assembling. Urban resources may be conserved by better understanding and managing of the process of sorting which goes on continually. (LG)

11. MECHANICS OF THE URBAN ECONOMIC BASE
Richard B. Andrews
A series of twelve articles on the theory of the economic base and the techniques appropriate to its measure, classification, identification, and delimitation. Special emphasis is placed on the problems of base dynamics in articles 9, 10, and 11. Articles 1 - 8 have appeared in Land Economics beginning in May 1953. The remaining four articles will appear in subsequent issues of Land Economics (May 1955 - February 1956).

Research Problem. To reexamine the concept of the economic base as propounded by Homer Hoyt with the objective of criticising its conceptual deficiencies and appraising its potentialities for use by planners.

Method of Study., Testing of the idea inventory relative to the economic base by means of a priori reasoning and the application of field findings.

Major Findings. The particular version of the base concept under examination shows great potential advantages for planning analysis. Its shortcomings appear to concentrate, thus far in the research, in the imprecision and narrowness of its identification and measurement devices which are further impeded by an only slowly clearing confusion in the field of terminology. (RBA)

12. FUTURE POPULATION CHARACTERISITICS IN THE NEW JERSEY-NEW YORK-CONNECTICUT METROPOLITAN REGION
Max E. Anderson assisted by Roy E. Miller (under the supervision of Henry Fagin, Planning Director)
Study in process, to be published as a Regional Plan Bulletin in summer 1955, Regional Plan Association, Inc., New York

Research Problem. To establish indications of future levels in selected regional population characteristics as a preliminary basis for other regional studies, particularly future economic activity and land use. Characteristics studied will include age and sex, the number of households, the size of the labor force and school enrollment.

Method of Study. Forecasts of the total population, already completed, will be used as the basis for forecasts of characteristics. As indicated in RPA Bulletin 85, "Population, 1954-1975", the forecast totals are to be regarded as preliminary until a more thorough-going economic analysis can be made of various industry groups to determine the magnitude of economic growth or decline. Consequently, the more detailed and laborious techniques sometimes employed in forecasts of population composition could not be expected to produce greater accuracy than the essentially simpler techniques which are being employed in the current work.

In general the method consists of using national composition projections as a base to determine future regional characteristics. The trend of the differences between the regional characteristic and the national characteristic are computed for past years and projected to forecast dates. The projected difference is then applied to the national projections to obtain regional values. In cases where there are statistics for 1950 but not for earlier census years the recent regional-national differences are assumed or modified in accordance with the indications of supplementary information. (HF)

13. THE IMPACT OF URBANIZATION ON AGRICULTURE IN SANTA CLARA VALLEY
Jack Lessinger
In Progress
Real Estate Research Program, Bureau of Business and Economic Research, University of California, Berkeley

Research Problem. This project deals with the processes of transition from agricultural to major urban uses of land in Santa Clara County, California. Attempt is being made to describe the step-by-step changes in the urban and agricultural land use patterns during a recent period of significant urban interpenetration and to determine the explanatory factors for these changes. Analysis will aim at isolation and comparison of different agricultural-urban transition processes with respect to agriculture already displaced as well as agriculture for which displacement seems imminent.

Hypotheses. Various hypotheses on the relationships involved will be tested by the data obtained. An economic classification of land has been set up and is being applied and tested for its worth as a frame of reference.

Method of Study. In order to accomplish the objectives of the study, data are being compiled on urban generalized land use at given points in time, factors affecting economic location, e.g., utilities, government services, highways, railroads, and factors affecting physical site quality such as soil qualities, topography, drainage, and microclimate. Similarly, available data are being employed to ascertain the changes in farming in various sections of the study area and to relate these changes as far as possible to changes in factors affecting urban developments. A case survey is being undertaken of approximately 30 farms in which different kinds of transition factors are present. Information on net incomes and factors affecting net incomes as well as on other factors affecting decisions to sell will be obtained from this sample.

Major Findings. It is too early in the study for definite conclusions to be reached, but it is believed that the plan to study the actual transitionary processes in an area will have value not only for the supplementation of current knowledge on this subject but also as the basis on which more orderly zoning in such areas may be considered. (MB)

14. THE LOCATION OF TOP ADMINISTRATIVE OFFICES IN THE SAN FRANCISCO BAY AREA
Donald L. Foley
Field work essentially completed; to be reported in monograph form, summer 1955.
Real Estate Research Program, Bureau of Business and Economic Research, University of California
Previous Digest report: No. 32, Vol. I

Research Problem. See previous digest report.

Seclected Hypotheses. The top administrative offices within any given metropolitan region will tend to be centrally located, and particularly in the region's main central district. There will be certain predictable differentials in the degree of centrality, depending upon type of firm, size of firm, and type of function handled by the office. The future structure of the metropolitan region is intricately related to whether top administrative offices remain centrally located.

Method of Study. Telephone interviews have been completed with 846 business firms or nongovernmental organizations having 100 or more employees within the 9-county San Francisco Bay Area. The present locational pattern and locational trends over the past 25 years are being studied to see whether there are consistent relations between these and certain characteristics of firms and offices. A series of interviews with executives, realtors, office building managers, and consultants is underway. A limited number of case studies of offices are now being developed for the purpose of studying the relation among office functions, linkages and location.

Major Findings. Preliminary analyses suggest that there has been considerable dispersal of administrative offices during recent years, but that it may be less than the rather dramatic reports about dispersal would lead one to believe. Much of the dispersal represents a rather natural relocation of firms when they have become too big for central

sites or the location of firms moving into the area; a considerable number of offices have also moved out with or to join manufacturing or warehousing operations. Except for a relatively small number of insurance company offices, there have been few free-floating, large administrative offices that have moved out. The future pattern, however, is far from clear, and the potential impact of technological change bears close scrutiny. (DLF)

15. PROCESSES OF CONTROL AND URBAN DEVELOPMENT
Urban Studies Committee, Institute for Research in Social Science, University of North Carolina
A continuing interdisciplinary research program in urban studies
Previous Digest report: No. 34, Vol. I

Research Problem. (1) As a group activity--to develop a working model which will explain the functioning of control processes that generate, guide or in some way influence urban change and development; and (2) at the project or individual research level--to pursue within the context of particular disciplines specific cases of urban change or development and identify the control processes which resulted in or from these changes. The ultimate objective is to understand more fully how and why urban areas develop and change, and more particularly to gain insights into how and to what degree such changes are, or can be, consciously guided through group action. It is aimed at developing a theoretical foundation for applied research in fields such as city planning, community organization, industrial development, and so on.

Previous Relevant Research. The Committee's exploratory studies on control and urban change are being built upon work in various fields, e.g. the notions of social control go back to the work of sociologists such as Cooley and Ross, and in contemporary research extend into a variety of disciplines including the concepts of Lasswell, Parsons and many others. Theoretical work in urban change and development covers an even broader spectrum, e.g. the work of Burgess, McKenzie, Bogue, Firey, Hoyt, and a great many others.

Method of Study. Working through a series of biweekly seminars, the group activity is presently focused on the development of a skeletal framework which is to be progressively refined as work of the individual members of the Committee proceeds and as the findings of completed research here and elsewhere are examined. The framework consists presently of a classification system for relating work across discipline lines. Ultimately it is hoped that the classification system can be expanded and translated into an integrated system of theory. It is expected that, as it develops, the outline will indicate greater detail in some areas than in others, according to the research interests of individual members of the Committee. The theoretical construct which emerges from this activity will thus include some specific generalizations, but interwoven with hypotheses to be tested by research of others on this and other campuses. (FSC)

16. A SURVEY OF URBAN RESEARCH IN SOUTHERN EDUCATIONAL INSTITUTIONS
Subcommittee on Research, Regional Committee on City Planning, Southern Regional Education Board. (Subcommittee: John A. Parker, Chairman; F. Stuart Chapin, Jr., Frederic N. Cleaveland, Lawrence Durisch, Aelred J. Gray, James W. Martin)
Report to be published by the Southern Regional Education Board during the summer of 1955.

Thirty higher educational institutions in the fourteen southern states submitted titles and bibliographical information on city planning oriented urban studies undertaken since 1949. Approximately two hundred items have been selected for inclusion in the final report. (JAP)

17. A CITY PLANNING ORIENTED ECONOMIC MODEL
Barclay G. Jones (Under the direction of C. E. Philbrook and F. S. Chapin, Jr.)
Master's thesis, September 1954.
Department of City and Regional Planning, University of North Carolina

Problem. Looking toward the development of an integrated system of planning theory and as an exploratory step in this direction, this study develops a theoretical model to describe the economic structure and functioning of cities. Using equilibrium theory, it analyzes income and employment in basic and service industry and gives special consideration to equilibrium of supply and demand for municipal facilities and services. (FSC)

18. THE URBAN PERCEPTUAL ENVIRONMENT
Gyorgy Kepes and Kevin Lynch
Three-year research study under a grant from the Rockefeller Foundation begun in September 1954.
Urban and Regional Studies Section, School of Architecture and Planning, Massachusetts Institute of Technology
Previous Digest report: No. 52, Vol. I

Research Problem. This study is exploring such questions as orientation in cities and the identification of significant elements in the cityscape. The objective is to provide guides for the design professions which might lead to creation of more satisfactory urban environments. (LBW)

19. LARGE LOT ZONING STUDY
William Barber, Salvatore Caso, Louis B. Wetmore
A nine-month study begun in January 1955.
A project of the Urban and Regional Studies Section, School of Architecture and Planning, Massachusetts Institute of Technology, sponsored by Massachusetts Department of Commerce, Massachusetts Federation of Planning Boards, Home Builders Association of Greater Boston, and Massachusetts Real Estate Association.

Research Problem. A study of the effects of large lot zoning (minimum lot sizes of one to five acres) on development costs of the subdivider and builder and of the community on rate of growth and community capital outlay, and on cost of housing. (LBW)

20. INDUSTRY AND COMMUNITY FINANCES
Walter Isard
A two-year study begun in May 1954.
A project of the Urban and Regional Studies Section, School of Architecture and Planning, Massachusetts Institute of Technology, sponsored by Boston Federal Reserve Bank.

Research Problem. A study of methods of analysis of the effects of a new industry on community revenues and expenditures. Two city planning master's theses to be completed in May 1955 are exploring aspects of this problem. (LBW)

21. TECHNIQUES FOR ANALYSIS OF REGIONAL RESOURCE DEVELOPMENT
Walter Isard
A five-year research program of the Urban and Regional Studies Section, School of Architecture and Planning, Massachusetts Institute of Technology, sponsored by Resources for the Future, Inc.

Research Problem. This program, to begin this spring, is being undertaken to develop techniques for analysis of transportation, industrial location and other questions related to the optimum use and development of resources. Input-output, linear programming, gravity models, operations research and other approaches will be explored. (LBW)

22. HOUSING PROBLEMS AND POLICIES IN A DEVELOPING ECONOMY - THE COMMONWEALTH OF PUERTO RICO
Carlos M. Alvarado (under the direction of Professor Reginald R. Isaacs)
Ph.D. dissertation - May 1956
Harvard University, Graduate School of Design, Department of City Planning and Landscape Architecture

Problem. A critical evaluation of housing and urban renewal policies of the Commonwealth of Puerto Rico in relation to the integrated socio-economic development program for the Island. To analyze general trends of factors affecting housing and urban renewal programs which may serve as basis for formulation of new policies. (RRI)

23. COMPREHENSIVE URBAN DEVELOPMENT AND FEDERAL GOVERNMENT HOUSING POLICIES IN CANADA
H. Peter Oberlander (under the direction of Professor Reginald R. Isaacs)
Ph.D. dissertation - Summer 1955
Harvard University, Graduate School of Design, Department of City Planning and Landscape Architecture

Problem. To evaluate the relationship between community planning and methods of its implementation, with particular reference to residential development. A close analysis of the nature of past and current Canadian Federal Government Housing policies, their goals, programs, methods of accomplishment and success will precede an attempt to answer: How can housing policies of a Federal Government achieve comprehensive community development as one of its prime goals thereby affording the consumer a more adequate choice of shelter as to location, size, price, tenure and design as well as help implement a community plan at the municipal level? (RRI)

24. A NEW CONCEPT FOR THE PHYSICAL LAYOUT OF THE URBAN NEIGHBORHOOD
Joseph DeChiara (under the direction of Harry A. Anthony)
A major research project, begun in September 1954, and still in process.
Columbia University, School of Architecture, Planning and Housing Division.

Research Problem. To investigate if the "neighborhood unit" concept, as expressed by Clarence Perry, is still valid in today's urban life. In case it is not, to attempt to develop a new concept for the physical layout of the urban neighborhood.

Method of Study. Examination of present conditions wherever the "neighborhood unit" concept was applied; study of the contemporary urban way of life and its specific needs; study of the city's components and their functional relationships.

Anticipated Findings. Development of new concept of the urban neighforhood: physical form, size and internal functioning. Layout of the basic dwelling unit in light of its relationship to the neighborhood. Application of new concept to a specific project in an urban area within the New York Metropolitan Region. (HAA)

25. PRINCIPLES AND STANDARDS OF RESIDENTIAL DENSITIES
Manuel S. Emanuel (under the direction of J. Marshall Miller and Harry A. Anthony)
Master's Thesis, February 1955
Columbia University, School of Architecture, Planning and Housing Division

Problem. An investigation of the feasibility of establishing optimum ranges of urban residential density and of developing principles of density determination. The problem was analyzed on the basis of the following four broad aspects: (a) Density within dwellings, (b) density of dwellings on the ground, (c) density in relation to the "neighborhood" and (d) density in relation to the municipality or urban area. (HAA)

26. A SYLLABUS FOR TEACHING HOUSING AND TOWN PLANNING IN THE JUNIOR AND SENIOR HIGH SCHOOLS OF NEW YORK CITY
Eraine R. Freeman (under the direction of J. Marshall Miller)
Master's Thesis, June 1954. (One volume and one portfolio of large scale illustrative materials.)
Columbia University, School of Architecture, Planning and Housing Division

Problem. This research was undertaken to create a course outline and resource study units on the general topic of city planning which could be utilized by junior and senior high school teachers in a core curriculum program in New York City schools. The syllabus and several resource units developed in this thesis were the outgrowth of research made for an experimental course in housing and city planning given at the Joan of Arc Junior High School in Manhattan's West Side, a course sponsored by the Ford Foundation's Joint Council on Economic Education. The syllabus is designed to be used in social science, English, art, music, and science classes simultaneously in a well rounded program aimed at helping students to attain an understanding of their environment, its problems and the

possible solutions for them. The resource units, with attached bibliography of reference books, community resources, trips, movies and graphic materials, were designed to aid the teacher in the area of the upper West Side of Manhattan in New York City. (HAA)

27. PLANNING FOR RECREATION AND PARK AREAS AND FACILITIES IN CALIFORNIA
Josephine Randall, Francis Violich, Mel Scott, Ken Anderson, George Hjelte, Paul Oppermann
A nine-month study begun in March 1955 to culminate in publication of a Manual on Principles and Standards to be used in planning Recreation and Park Areas and Facilities in California.
Sponsored by California Committee on Planning for Recreation and Park Areas and Facilities brought together by the State Recreation Commission, and financed by grant from the Rosenberg Foundation, San Francisco.

Research Problem. (1) To conduct a comprehensive survey and study of the needs, experience and best practice in California communities, as related to planning for the acquisition and development of recreation and park areas and facilities under public ownership in urban and populated centers.

(2) To formulate a guide containing principles, criteria and graded standards for the planning of public recreation areas and facilities.

(3) To present these principles, criteria and standards in a guide appropriate for adoption by the Committee and by a Statewide Advisory Committee on Planning for Recreation and Park Areas and Facilities; and by organizations representing agencies of local government, recreation, park and planning boards, statewide, regional and local voluntary planning bodies, professional societies in the recreation and planning fields, private consulting firms in the planning field, and other interested agencies and organizations. (FV)

28. RESIDENTS' KNOWLEDGE ABOUT THE BERKELEY MASTER PLAN
Donald L. Foley, Robert Reece, Jacques DuBois, Marilyn McCurtain
Research completed, being submitted for publication as journal article
University of California, Department of City and Regional Planning

Research Problem. To find out how many Berkeley adults have heard of their city's master plan and how much these adults understand about this plan and the planning agency. Since the study followed a year's intensive public relations program it has been assumed that the findings would show how effectively a city planning agency could disseminate information about its master plan, under rather favorable conditions.

Previous Relevant Research. Relatively little, except for Melville Branch's Princeton studies, 1942.

Method of Study. Interviews were completed with 89 Berkeley adults selected by a three-stage systematic areal probability sampling model. The schedules contained certain items designed to measure how much respondents knew about city planning in Berkeley and other items intended

to identify certain salient characteristics of the respondents. Using IBM equipment, it was possible to explore Politz and Simmons' technique for providing a statistical equivalent for "not at homes."

Major Findings. Nearly two-thirds of the Berkeley adult, nonstudent population sample stated that they had not heard of the "Berkeley master plan." One-third of the adults had never heard of the City Planning Commission; 41 per cent had no understanding of what the City Planning Commission did; 76 per cent had never discussed the master plan; 96 per cent had never seen the master plan report; 96 per cent had never attended any meetings about the master plan; 97 per cent had never read the master plan report. Within Berkeley there were striking differentials in knowledge of planning: employed, active residents with high socio-economic status, strong local orientation, long residence, and living in "good" residential districts tended to know about the master plan. Those with opposite characteristics were unlikely to have heard about the plan. The newspaper proved to be by far the best medium of information. It was apparent that the Berkeley master plan passed the political test of Council adoption even though a large proportion of residents had not even heard of or knew very little about the master plan. (DLF)

29. THE URBAN TRANSPORTATION PROBLEM

National Committee on Urban Transportation (a joint activity of the American Municipal Association, American Public Works Association, American Society of Planning Officials, International City Managers' Association, Municipal Finance Officers Association and National Institute of Municipal Law Officers).

A national project begun in 1954. A statement of project proposal entitled "Getting to the Heart of the Urban Transportation Problem" available from Norman Kennedy, Staff director for Committee, Institute of Transportation and Traffic Engineering, University of California, Berkeley.

Problem. To establish what facts are needed in evaluating deficiencies in urban transportation systems and to provide standard procedures for data collection. The Committee notes that inadequate factual data are seriously hampering sound administrative decisions in many cities. The lack of facts makes it difficult to deal with the serious problems related to planning, construction, operation and maintenance of urban transportation systems and to provide the proper integration and balance needed among all forms of transportation.

Method of Study. To develop various phases of the project, nine subcommittees have been established made up of specialists working in the transportation field. After techniques and methods are established initially, pilot studies will be conducted in cities throughout the country. The procedures will be reviewed and refined in the light of the pilot projects. Finally, manuals will be prepared and made available to all cities. (NK-FSC)

# RESEARCH

# DIGEST

Sponsored by the
Urban Planning Research Group

Vol. 2, No. 2 November, 1955

Prepared and distributed during 1955 by the
Department of City and Regional Planning
University of North Carolina
Chapel Hill, North Carolina

Contents

EDITORIAL NOTES

Next Issue. With the distribution of this fourth number of the RESEARCH DIGEST, the editorial responsibilities for the calendar year 1956 rotate to the University of Illinois where Louis B. Wetmore will carry this collaborative project forward.

Circulation. Response of contributing university research groups and public and private agencies sharing in this reporting activity continues to be enthusiastic. We now have about 15 such regular group contributors, and a circulation of nearly 100 copies. Remembering that the Digest is essentially a researcher's medium of exchange and communication aimed at reporting on current urban research---pending, in progress, or recently completed---these indications of its utility and general interest would seem to justify the effort put into the bulletin.

Future Plans. At the Montreal meeting of our sponsoring Urban Planning Research Group, members present confirmed this point of view. On the basis of comments received from the editorial steering Committee, it was the consensus of the group that decision on a rotating versus a permanent home base should be postponed another year to allow time for exploring the alternatives more thoroughly. There was general agreement that a nominal charge, possibly $1 to $3 a year for non-contributing subscribers would be necessary, but formal decision on this matter was withheld until the arrangements for home base of the Digest were agreed upon.

F. Stuart Chapin, Jr.

* * *

NEWS ITEM

Martin Meyerson, executive director and research director of the American Council to Improve Our Neighborhoods who is on leave from the Institute for Urban Studies, University of Pennsylvania, reports a $250,000 housing research grant to ACTION from the Ford Foundation. The funds will be used to investigate "impediments to the provision of adequate housing and the means to remove these impediments." The first issue of Volume 3 will carry a project summary of this research.

30. MARKETING HANDBOOK FOR THE PREFABRICATED HOUSING INDUSTRY
Glenn H. Beyer and James W. Partner
Research report published in 1955 by the Housing Research Center. Housing Research Center publication No. 2. Available from that agency, $1.25 per copy.
Conducted under Housing Research Center as a supplementary project to study supported by Housing and Home Finance Agency 1951-52 (Practices and Precepts of Marketing Prefabricated Houses Beyer and Yantis, U. S. Government Printing Office, Nov. 1952).

Research Problem. This study represents an application of the precepts of marketing prefabricated houses brought out in earlier study.

Method of Study. A field study of 43 manufacturers and 120 dealers served as the basis for the initial study. This study utilized information obtained in the earlier study and supplemented it through additional investigation of the marketing process with key individuals in both the prefabricated housing and general marketing fields.

Major Findings. This handbook provides for the real estate and home building industries generally and the prefabricated housing group specifically a handbook of marketing principles.

The study emphasizes the role of the consumer in the market. It points out the importance of market analysis and the need for establishing sound marketing policies.

Regarding the channels of distribution, it emphasizes that direct shipment from factory to consumer is desirable but that the dealer has an essential role to play.

Other subjects discussed include pricing policies, sales organization, personnel recruitment, selection and training, compensation, advertising and control of the sales operation. A bibliography is included. (GHB)

31. HOUSES ARE FOR PEOPLE: A STUDY OF HOME BUYER MOTIVATIONS
Glenn H. Beyer, Thomas W. Mackesey, James E. Montgomery
Research report published in 1955 by the Cornell Housing Research Center, Ithaca, New York. Housing Research Center publication No. 3. Available from that agency, $1.75 per copy.
Sponsored by the Russell Sage Foundation with additional grant from Research Institute of National Association of Home Builders.
Previous Digest Report: No. 19, Vol. I.

Research Problem. To apply knowledge about fundamental human values to the problem of improving small house design.

Method of Study. A sampling technique was used in selecting 1,000 families living in recently built homes in metropolitan Buffalo, New York area. Husbands and wives were both interviewed, generally independently. Three-fourths of families were home owners and one-fourth were renters. Following field survey and analysis of data, architectural staff interpreted data and prepared design guides.

Major Findings. When the backgrounds, habits, interests and wants of a large group of families were analyzed, it was found that different families emphasized different social "values" which dictate different housing features. The social "values" analyzed in detail were economy, family centrism, physical health, aesthetics, leisure, equality, freedom, mental health, and social prestige. It was found that physical health, mental health and family centrism were closely related. Also, aesthetics, leisure and equality were similarly related. The values of economy and social prestige stood by themselves.

House types developed for these families were called "family house," "personal house," "economy house," and "prestige house."

Families for whom the economy house was designed are conservative in taste and are interested first of all in good value for their money. The illustrations show a simple and compact house.

Those in the family group stress the welfare of the whole family and need a house that holds the family together. The design has a "family room" instead of the conventional living room, a playroom next to the children's bedrooms, and a clear view for the mother from the kitchen to the playroom, family room and play terrace.

To families in the personal group, privacy, self-expression and aesthetics are most important. More individualistic and less traditional than average, they have a strong desire for freedom and independence. Their house has a separate study, separate bedrooms for each child if possible, two full bathrooms and a terrace back of the house.

For families in the prestige group, a house is primarily a sign of social position and a place to entertain, often formally. Their taste is influenced by friends, neighbors and magazines, and they want the esteem of their acquaintances.

The booklet also lists planning guides for leisure activities and entertaining, dining and kitchen activities, bedroom arrangements, storage and lot planning and location. (GHB)

32. A POLK DIRECTORY ANALYSIS OF THE CBD
Marion F. Murphy and Raymond E. Murphy
The work is now in progress at Clark University; it is assumed that a magazine article will result.
Private research; the typing, coding, and IBM work has been paid for by the Worcester, Mass., Chamber of Commerce.

Research Problem. This study deals with a method of analyzing the CBD through the use of a Polk Bluebook, the Bureau of the Budget classification code, and IBM cards. Through adding a code by blocks a picture can be secured not only of distributions of single types of establishments within the CBD but of associations of types as well. The advantages and disadvantages of the method as a means of gaining an understanding of a CBD will be considered. How valuable

are the resulting data as compared with those resulting from ordinary land use mapping? Also, the efficiency of the method as a possible basis for comparing CBD's will be considered.

Method of Study. Establishments within the CBD of Worcester, Mass., were listed on cards showing street addresses, block number, and certain other information. Then the type of establishment was coded according to the Bureau of the Budget classification, and this information together with block numbers and other data was set up on IBM cards. From the results, distribution maps are being made showing distribution of single types of establishments and combinations of types. Further study will deal with an evaluation of the method and a consideration of its potentialities. (REM)

33. LIVABILITY IN THE CITY: ATTITUDES AND URBAN DEVELOPMENT
F. Stuart Chapin, Jr., and Robert L. Wilson
Research in design stage; pilot studies to be carried out over a two-year period.
Project of Urban Studies Committee, Institute for Research in Social Science, University of North Carolina.
Previous Digest Reference: See description of Committee program, No. 15, Vol. 2; No. 34, Vol. 1.

Research Problem. Rapid strides have been made in the past ten years in the development and refinement of land use planning techniques, particularly in the substitution of objective analyses for the formerly subjective approaches to determining location and space requirements for land use. These advances have been particularly marked in those aspects of land use planning dealing with the physical characteristics of land use, the physiographic setting and the economic and population characteristics of urban areas.

Relatively little attention has been directed toward the identification of community values and attitudes concerning livability qualities of cities. Much lip service is given to "planning for the needs and wants of the people," yet city planning agencies presently must rely on very subjective notions of livability, some perhaps more truly representing the values of the city planners themselves than those of the people of the community.

One purpose of this research is to develop, test, and experimentally apply a technique feasible for a planning agency to employ in identifying prevailing attitudes of livability which have significance for land use planning. While primary emphasis will be on livability qualities that apply to broad-gauge land planning procedures, i.e., the location and arrangement of functional use areas and their intensity of development, limited attention may be focused on site planning considerations at the sub-neighborhood level. More broadly, this is one of a series of projects aimed at experimenting with the Urban Studies Committee's classification framework concerning processes of control and urban development. (FSC)

34. LONG-RANGE HURRICANE REHABILITATION

Pearson H. Stewart, George Beaton, John Hampton, Melvin Levin, James Pickford, Frank Skrivanek

Emergency project in field work and investigation stages, to be completed in a two and one half month period; publication is expected in December, 1955, in the form of a report to the Governor of North Carolina.

Conducted for the office of the Governor of North Carolina from emergency state funds by a special staff recruited by the Department of City and Regional Planning, University of North Carolina, and administratively responsible to the Council of Civil Defense, State of North Carolina.

Research Problem. The project seeks to find ways by which the rebuilding and future development of the coastal areas of North Carolina which are subject to the continuing threat of damaging hurricanes can be undertaken so as to facilitate sound use of the resources of the area in relation to the hazards involved. The project aims to prepare a framework of action looking toward planning and development guides for future public and private investment in areas subject to severe damage from recurring hurricanes.

Because the project has been established on a two and one half months basis, it will be feasible only to identify the major problems and range of possible solutions appear most likely to produce results.

Previous Relevant Study. "Interim Report, Hurricane Rehabilitation Study," Rhode Island Development Council, Providence, Rhode Island, October, 1954, 61 pp., maps.

Scope of Project. A reconnaissance survey will be made to determine under what topographic, drainage, beach, and other situations, damage is brought about by excessive tides and floating debris, battering, wave action, high winds and driving rain, and general flooding accompanying excessive rainfall. Special attention will be given to crop damage, beach erosion, and destruction in resort and other urban areas. Consideration will be given to the effect of hurricanes upon the basic resources of the hurricane area, such as soils and agricultural products, recreation and resort facilities, fisheries, and industries. Basic rehabilitation and development problems of the area will be summarized and subsequent actions will be recommended. (PHS)

35. FLOOD PROBLEMS AND THEIR SOLUTION THROUGH URBAN PLANNING PROGRAMS

Robert W. Siler, Jr.

Study published in September, 1955, by the Tennessee State Planning Commission, Cordell Hull Building, Nashville 3, Tennessee, as Publication No. 262. Available from that agency, $1.00 per copy.

Prepared as a master's thesis, University of North Carolina, Department of City and Regional Planning (under the direction of John A. Parker and James M. Webb) with the assistance of the Tennessee Valley Authority.

Problem. To identify alternative measures available for the reduction or prevention of damages resulting from floods. To outline a comprehensive program which considers the land use needs of the locality, as well as the needs of the river or stream in passing its flood waters, as a basis for the alleviation of flood problems in urban areas. To suggest means for the effectuation of such a program through the use of the police power, urban renewal, and municipal policies relating to the locating and construction of public facilities, as well as through the use of physical protective devices where the need is indicated. (JAP)

36. THE POPULATION OF THE UNITED STATES: TRENDS IN SIZE, COMPOSITION AND DISTRIBUTION, 1790-1955
Donald J. Bogue
Study to be completed February 1, 1956.
Results to be published by the Scripps Foundation for Research in Population Problems, Miami University, Oxford, Ohio.

Coverage. Contains materials tracing rise of urbanism in the United States, and much new information about the characteristics of urban populations, changes in composition of urban populations, and characteristics of their standard metropolitan areas, and their central cities and suburban rings. (DJB)

37. AN ANALYSIS OF PROPERTY TAX BILL DIFFERENTIALS BETWEEN RECENTLY ANNEXED URBAN AREAS AND THEIR PARENT TOWNSHIPS
Richard B. Andrews
First of a series of metropolitan area studies for which sponsorship is sought from the Wisconsin League of Municipalities and the University of Wisconsin Bureau of Business Research and Service; project in its formative stage, with no research as yet performed. Publication expected in multilith form within two years.

Research Problem. This study has as its hypothesis the idea that the political integration of metropolitan areas is retarded by an exaggerated belief on the part of residents in unincorporated urban areas that annexation to central cities will involve substantial increases in property taxes. There is reason to suppose that as unincorporated urban areas shrink in size due to annexation, and that as they expand public services in their early periods of urbanization tax bills may actually equal or surpass those of the central city.

Method of Study. An examination of properties and tax records in selected periphery areas of Wisconsin's second and third class cities. A pilot study in the Madison area will be made. (RBA)

38. THE DYNAMICS IN THE LOCATION OF NON-RETAIL FUNCTIONS IN THE CENTRAL BUSINESS DISTRICT.
Howard D. Lowe (under the direction of Professor R. U. Ratcliff)
Doctoral Dissertation, School of Business, Indiana University; Expected completion date, July, 1956; Publication possible by the Bureau of Business Research, University of Wisconsin.

Research Problem. This study will report and analyze the long term changes in the non-retail functions of the central business district primarily of Madison, Wisconsin. Relative comparisons will be made between non-retail and retail uses of land.

Hypotheses. (1) Certain interrelationships exist between different types of non-retail functions, and between non-retail and retail functions that command locations available to each other. These along with retail and non-retail functions with city-wide markets, serve as the basis for the central business district. (2) As cities grow in size the non-retail functions in the central business district tend to grow in importance faster than the retail functions. (3) Activities involving the sale of services and goods in which the actual transfer of physical possession takes place at another location is emerging as the dominant activity of the downtown area. (4) If retail business begins to suffer an absolute decline in the central business district, this does not mean that the downtown area is beginning to decay. Retail functions may be replaced by non-retail functions without loss in importance of the central business district.

Method of Study. Counts of numbers of establishments, floor space, assessed valuations will be made from such sources as the Madison City Directory, telephone books, and assessment records. Questionnaires and personal interviews will also be used. (HDL)

39. THE STRUCTURE OF A METROPOLITAN BUSINESS DISTRICT IN TERMS OF LAND VALUES
Gerald K. Taylor, Jr. (under the direction of Howard K. Menhinick)
J. C. Nichols Foundation Award Research (Will also comprise a Master's Thesis, June, 1956.) Georgia Institute of Technology, Graduate City Planning Program.

Problem. To bring to light the action and interaction of value to use, asking price, and purchase price in the Atlanta Central Business District for the purpose of enabling the municipal planning agency, land owners, and realtors to anticipate the effects on property values of typical changes that are taking place or are proposed in this area of the city. (HKM)

40. METROPOLITAN AREA PLANNING
Reginald R. Isaacs, John M. Ducey, Walter H. Blucher and others
Research project for the Metropolitan Housing and Planning Council of Chicago to be completed October 1956.

Research Problem. To outline the objectives, ideal organization, research and planning program, finance and model legislation necessary for metropolitan area planning---not a plan, but rather "a plan for a plan." (RRI)

41. THE INSTITUTION AND THE COMMUNITY - PLANNING FOR INSTITUTIONS OF HIGHER EDUCATION
William Alonso, Rafael Corrada, Richard Dober and Boris Oxman (under the direction of Reginald R. Isaacs)
Special research project commencing September, 1955.
Research being conducted at Harvard University, Graduate School of Design, Department of City Planning and Landscape Architecture.

Research Problem. (1) To formulate an organized listing of factors generally applicable to planning for institutions of higher education in the United States; and (2) To develop this listing for application to Harvard University.

Method of Study. An application of the methods of comprehensive planning, consisting of three parts:

(1) The social institution viewed from the disciplines of Design, Economics, Education and Sociology.

(2) An annotated listing of planning considerations.

(3) An evaluative application of this approach to Harvard University as a special case study. (RRI)

42. THE ECONOMICS OF SLUM HOUSING - IMPLICATIONS FOR URBAN REDEVELOPMENT PLANS AND POLICIES
August T. Nakagawa (under the direction of Reginald R. Isaacs)
Special research study, February 1956
Research being conducted at Harvard Graduate School of Design, Department of City Planning and Landscape Architecture.

Research Problem. To study the economics of slum housing from the point of view of the individual slum property owner. To gain some notion of the profitability of a small slum area in Boston, taking this case study over a range of ten years, 1946-1955. The investment value of slum housing thus realized may allow the formulation of hypotheses as to the implications to urban redevelopment plans and policies. (RRI)

43. RURAL HOUSING RECONSTRUCTION IN EGYPT
Sami Y. Hassid (under the direction of Reginald R. Isaacs)
Thesis under preparation for the Ph. D. degree in Architecture, Faculty of Arts and Sciences, Harvard University; Contemplated date of completion 1956.

Problem. To discuss the feasibility of a policy of total rural housing reconstruction within the limitations and foreseeable trends in social and economic trends in Egypt. To analyze factors likely to improve social rents. To investigate ways and means to improve standards, increase volume and reduce cost of rural housing. To formulate proposals for the organization of the execution of alternate programs. (RRI)

44. AIRPORT ZONING
Walter T. Milliner (under the direction of Louis B. Wetmore)
Thesis, M. S. in City Planning, University of Illinois, to be completed in February, 1956.

Problem. A study of airport-community conflicts, trends in aircraft terminal operations, and land use in the vicinity of airports which is aimed at defining the necessary policies and controls for protecting both the airport and its neighbors. (LBW)

45. THE JOURNEY TO WORK IN AMERICAN CITIES
Howard Lapin, Research Associate
Project initiated October, 1954; to be completed June, 1956.
Research being conducted by the Institute for Urban Studies, University of Pennsylvania.

Research Problem. (1) To estimate the proportion of total travel arising as a result of work journeys. (2) To describe the hourly and spatial patterns of work journeys within the total volume of travel in urban areas of different population size.

Previous Relevant Research. A bibliography of numerous previous studies dealing with specific localities is in preparation and will be published with the final monograph. Other studies are listed in "Community Patterns of Industrial Workers" by Leonard P. Adams and Thomas W. MacKesey (see Previous Digest listing, No. 1, Vol. 2).

Hypotheses. (1) Work journeys comprise a large proportion of all travel and are the limiting factor in transportation design because of their hourly distribution. (2) Postwar work journeys conform to the hypothesis of Douglas Carroll with respect to spatial distribution. (3) There is a tendency for employment generating land uses to disperse American cities so as to reduce the spatial but not the temporal concentration of movement.

Method of Study. In cooperation with the Bureau of Public Roads, special tabulations of O. & D. studies have been prepared for five metropolitan areas of varying size which reveal time, frequency, mode, purpose and distance of travel in the postwar years. Data are available for two periods in the Philadelphia area and some others which may reveal trends. (WLCW)

46. STUDY OF STANDARDS AND REQUIREMENTS FOR SELECTED COMMUNITY FACILITIES AND SERVICES
Martin Meyerson, John W. Dyckman and Herbert J. Gans
Part of a continuing study of planning standards and requirements, one of a series of continuing studies of information for city planning decision-making; main investigation of this phase to be concluded in 1956, with publication sometime in that year.
Conducted by members of the Institute for Urban Studies under the sponsorship of Russell Sage Foundation.

Purpose. Clarification and improvement of community planning methodology through separation of "fact" and "value" components of standards and requirements developed for application to community facilities planning.

Research Problem. Since the greatest impact of city planning decisions falls on community services requiring substantial physical facilities, e.g., parks, playgrounds, filtration plants, etc., and its force is felt less directly on less space-bound programs such as home nursing, aid to dependent children, etc., the community facilities studies have focused on areas which involve physical plant and program studies. The three initial areas chosen are health and medical care, education, and leisure and recreation.

Any coordinated community planning for these facilities requires community decisions on two basic or related levels: (a) goal setting and defining, and (b) goal implementing, or selection of the "best" combination of means from among a set of alternatives. Particular community decisions with respect to the three sets of facilities are discussed under these two categories. Particular attention is given to possible disparity of goals of (1) the suppliers of the facilities, or the standards setters who guide them, and (2) the consumers of the facilities, past and potential.

Method of Study. Extensive library research supplemented by limited interviewing and first-hand investigation is employed. Emphasis is placed on thorough survey of existing research findings in these fields in order to spot-light major deficiencies in substantive information, and to sensitize operating decision makers to relevant research in "basic" fields which may have bearing on problem areas confronting them. (WLCW)

47. PHILADELPHIA METROPOLITAN AREA INDUSTRIAL LAND AND FACILITIES REQUIREMENTS
Institute for Urban Studies, University of Pennsylvania.
Project proposal listed in Vol. 2, Item 2; Vol. 1, Item 13.

Scope of the project expanded by contract with the Pennsylvania State Planning Board to cover the metropolitan area. The project design remains the same as that described in the above listing. (WLCW)

48. PHILADELPHIA EASTWICK HOUSING MARKET ANALYSIS
Institute for Urban Studies, University of Pennsylvania.
Project proposal listed in Vol. 2, Item 3; Vol. 1, Item 43.

Scope of the project has been expanded to include special studies of the housing market for Negroes in the Philadelphia metropolitan area and of market behavior in transitional areas in the Philadelphia metropolitan area under a grant from the Commission in Race and Housing. The project design remains as described earlier. (WLCW)

49. STANDARDS OF AUTO AND TRUCK FACILITIES AND SERVICE
Subcommittee II, National Committee on Urban Transportation;
Gordon Gravelle, Secretary(Automotive Safety Foundation).
Part of a National Committee program begun in 1954.
Previous Digest report on Committee as a whole: Vol. 2, Item 29.

Research Problem. To develop standards which would act as guides for cities in planning and developing their street systems to meet present and future traffic demands.

Method of Study. Largely one of reviewing existing data in the field to evaluate what logical standards can be established on the basis of these data and making special pilot studies in unexplored areas.

Major Findings. This project is still under way, though there have been several drafts prepared by the subcommittee. The present draft outlines a procedure for classifying streets in urban areas, and how to evaluate the adequacy of the service provided by various types of streets. (AMV)

50. STANDARDS OF TRANSIT FACILITIES AND SERVICE
Subcommittee III, National Committee on Urban Transportation;
Walter Rainville, Secretary (American Transit Association).
Part of National Committee program begun in 1954.
Previous Digest report on Committee as a whole: Vol. 2, Item 29.

Research Problem. To develop objectives related to transit operation and to establish guides which would be valuable in evaluating transit service.

Method of Study. Largely one of reviewing existing data on this subject in an attempt to obtain practical standards for transit usage. The group is undertaking some special studies to investigate unexplored areas in this field.

Major Findings. Though this project is still under way and probably will not be completed for a year, the present draft of the subcommittee covers the following subjects: loading, route coverage, frequency of service, and travel time. The subcommittee has also given some consideration to proper relationships between street patterns and transit service. (AMV)

51. HIGHWAY LAWS STUDY
David R. Levin, Louis R. Morony and others.
Study being conducted by a special committee of the Highway Research Board under direction of above persons from staffs of the Bureau of Public Roads and the Automotive Safety Foundation, respectively.

Research Problem. To determine the legal elements that are necessary to adequately carry out a highway program at the state and local level.

Method of Study. Involved are first a review of all highway laws to determine the legal elements that are now being employed and then an evaluation of the elements necessary to carry out an effective highway program. It is hoped that eventually the Committee will be able to prepare a guide that will be helpful in preparing the necessary legislation needed to implement a highway program.

Major Findings. This study at the present time has revealed that there is a wide variation in the legal machinery that is used in various states. The first phase of this study will deal with access control, and a report on this subject is expected by the first of next year. (AMV)

52. PARKING AS A FACTOR IN BUSINESS
Committee on Study of Parking and Its Relationships to Business, Highway Research Board; Joseph Stegmaier responsible for coordinating work (Bureau of Public Roads); conducted with the assistance of five universities considering various phases of overall problem.
Popular summary of Committee's findings to date to be published early in 1956 under title "What Parking Means to Business."

Research Problem. To determine the impact of adequate parking on the urban structure and to retailing activities.

Previous Relevant Research. The Committee's publications: "Parking as a Factor in Business," Highway Research Board Publication 273, 1953; "Shopping Habits and Travel Patterns," Highway Research Board, 1955; and other reports.

Method of Study. The first step was to consider the various aspects of the problem---shopping habits, shopping attitudes, land values, retail trends and attitudes of department store executives. More recent efforts have been in the review of these basic findings in the hope of establishing a more thorough perspective on parking as a factor in business.

Major Findings. The importance of adequate parking varies a great deal. From the merchants' viewpoint it can be a very important factor in drawing shoppers from one store to another. However, it is not likely to increase greatly the trading area of any particular shopping area or center, though in the long run an adequate parking program may greatly stimulate investment policies to the extent that merchants will reinvest in established areas---this in turn will provide greater selection in a shopping area and over a period of time can increase the drawing power of a shopping area. (AMV)

53. LAND USE RELATIONSHIPS WITH TRAVEL PATTERNS
F. Houston Wynn
Preliminary report presented as a paper at Highway Research Board meeting, January 1955.
A project of the Yale Bureau of Highway Traffic; studies include student theses on aspects of overall project.

Research Problem. To determine whether it was possible to establish a relationship between land uses and the traffic they generated.

Method of Study. This was carried out by an analysis of origin and destination studies made in many cities throughout the country. There were many approaches to analyzing this material.

Major Findings. There is a consistent relationship between certain known factors related to auto registration, population density and city size, which affected the number of trips made to a central business district. There is a marked difference between the generating characteristics of a central business district, suburban shopping areas, and outlying industrial sites. (AMV)

54. SHOPPING CENTER STUDY
Edward Mueller
Summary of highlights of this study appears in October, 1955, issue of "Traffic Engineering" magazine.
A project of the Yale Bureau of Highway Traffic.

Research Problem. To determine the traffic characteristics of large regional shopping centers and the traffic that such centers generate.

Method of Study. Detailed traffic studies at the various centers were undertaken. These studies determined time of arrival, length of stay and mode of travel used by shoppers, and the origin of such shopping trips.

Major Findings. Though a final report has not been completed on this project, preliminary summaries show that there is a great deal of similarity in the arrival pattern of shoppers to suburban centers. (AMV)

55. LOCAL GOVERNMENT POLICY-MAKING AND NEW RESIDENTIAL DEVELOPMENT
Three articles culled from a dissertation: (1) A Conceptual Scheme for Analyzing Financial Factors Affecting Local Government Finance; (2) Characteristics of New Residential Development Significant for Local Government Finance; (3) Effects of Tax Change on Local Government Policy Toward Low-Value Residential Development.
George Duggar
Completion by January 15, 1956; being prepared for Journal publication; a portion to be presented at the December meetings of the Regional Science Association.
A project of the Bureau of Public Administration, University of California.

Research Problem. These three articles attempt to describe the process by which local governments, dependent upon the real property tax, believe themselves financially threatened by low-cost housing (largely under federal mortgage insurance, guarantee, and subsidy), and take actions which tend to offset and prevent such construction. The trend, during the Great Depression, away from the local property tax is assessed as a factor tending to avoid such conflict.

Hypothesis. That among small suburban governments encompassing chiefly residential areas and dependent upon the real property tax policies affecting residential development are explainable in large part by financial prospects, namely the assessable values and costs associated with the proposed new houses.

Method of Study. The so-called "method of clarification" which seems to be the chief method of economics, is used, in which it is assumed that a process is correctly described if it is rigorously defined, illustrated by examples, and can appeal to common human sympathy as plausibly related to human motivations.

Major Findings.

1. That new houses while generally of higher value than the old and located largely in the suburbs, are so distributed that the lower value new houses are largely suburban and, in any case, new houses present financial problems for suburban governments dependent upon the real property tax;

2. That each of the major powers of fractional municipalities in urban areas is used in ways tending to offset federal attempts at stimulating the production of low-cost housing;

3. That this tendency is reduced with a change from the real property tax to taxes not differentiated by value of house; and

4. That a federal housing policy which neglects such reactions of such local governments is self-limiting. (GD)

56. THE URBAN GENERAL PLAN
T. J. Kent, Jr.
Conducted as individual study related to teaching and research work in the Department of City and Regional Planning, University of California.
Previous Digest report: Item 6, Vol. 2; Item 26, Vol. 1.

Progress Report. This project, involving a definition of the minimum essential elements and major characteristics of the urban general plan and its political and technical functions, is in manuscript form and being prepared for circulation and critical review prior to publication.

57. RESIDENTIAL DENSITIES IN NEW YORK CITY
Jack Freidin (under the direction of Harry A. Anthony and J. Marshall Miller)
Master's thesis, September, 1954.
Columbia University School of Architecture, Planning and Housing Division.

Problem. To offer for consideration certain possible future residential densities in New York City in the light of the requirements of the City's population so that planning may proceed with regard to the future total residential demands of each borough. (JMM)

58. THE FUTURE OF HOUSING IN BANGOR (MAINE)
Warkentin Schroeter (under the direction of Harry A. Anthony and J. Marshall Miller).
Master's thesis, May 1955.
Columbia University School of Architecture, Planning and Housing Division.

Problem. To describe Bangor's housing situation, to show where it is headed, and to explore means of arriving at a realistic program of action which will assure decent and healthful living conditions for all. (JMM)

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# RESEARCH

# DIGEST

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## Contents

EDITORIAL NOTES

Digest Aims (reprinted from Volume 2-No. 1, April 1955). If it is possible to identify the content emphasis of the RESEARCH DIGEST, its founders in all likelihood would agree that its primary focus is upon urban-oriented research, from whatever discipline or field which advances understanding of the growth and development of urban areas and the theory and practice of urban planning. The Digest is intended to be a researcher's medium of exchange and communication in which current research--pending, in progress, or recently completed--is summarized. It reports primarily on the work of faculty researchers or research staffs either university or agency, although it carries a few abstracts of student dissertations and theses where the work is directly related to on-going staff research activities of the institution or is considered by the reporting institution to have significant reference value to others engaged in research.

In general, the Digest carries summaries of studies, projects or programs of both an empirical and theoretical nature and of both a fundamental and applied type where methods and results have transfer value or application in other research. Except where new or improved methods and techniques are involved, operationally oriented surveys, plan studies and similar work dealing with a particular urban area are generally excluded.

Volume 3. After appearing with a Berkeley dateline (Volume 1, 1954) and a Chapel Hill dateline (Volume 2, 1955), the RESEARCH DIGEST, Volume 3, comes to you from Urbana, Illinois. Major responsibility for this issue has been shared by Robert Giltner and Peter Walker, Graduate Assistants, and Mrs. Doris Ullman, Secretary of the Department of City Planning and Landscape Architecture.

Contributions to this issue which appear in the table of contents are gratefully acknowledged herewith. It should be noted that correspondents for Georgia Institute of Technology, Harvard University and Princeton University report that progress is being made on research listed in previous Digests, although no new projects are being added at this time. In the index this fall an attempt will be made to indicate the status (completed, in progress, dropped) for the various research projects reported in Volumes 1 and 2.

Meeting in Providence. At the A.I.P. annual meeting in Providence, arrangements have been made for a luncheon meeting of contributors to RESEARCH DIGEST on Tuesday, May 8th. At that time, policy on distribution, subscription fees, and a permanent headquarters will be discussed.

Next Issue. Contributions for the next issue should reach your editor by October 31, 1956. They should be mailed to Louis B. Wetmore, Department of City Planning and Landscape Architecture, University of Illinois, Urbana, Illinois.

Louis B. Wetmore

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1. URBAN RENEWAL IN A CHICAGO NEIGHBORHOOD: AN APPRAISAL OF THE HYDE PARK-KENWOOD RENEWAL PROGRAM
Harvey S. Perloff
Published in booklet form by the Hyde Park Herald, Inc., 5335 S. Lake Park Ave., Chicago, Illinois, August 1955, 35 pp., 50¢.
No previous Digest report

Research Problem. An evaluation of the urban renewal effort in a southeast section of Chicago currently undergoing a pioneering form of re-development.

Major Findings. The major task for the renewal effort is to get a "process of self-sustaining improvement under way rapidly, so that (the area) continues to be an especially attractive community for the university-professional-managerial group"....The most strongly emphasized needs as yet incompletely filled include: 1) the creation, through cooperative arrangement among the major organizations in southeast Chicago, of an improvement and stabilization program for a wider area than is being currently programmed; 2) more and better public services and facilities, including establishment of a commission to study the problems involved in the enforcement of building and zoning laws; 3) development of an internal improvement program which tries to make the housing, services and facilities of the renewal program consistent with "the needs and values of the present residents and compatible groups who might be attracted here"; 4) removal of more slum and blight pockets than included in the present redevelopment project; 5) development of a "core shopping center"; 6) "establishment of an experimental combined elementary-junior high-senior high school campus"; and 7) creation of a "hard-hitting" program to bring more housing, in a variety of kinds and price ranges, to the area; a development corporation being necessary "to carry out direct real estate operations".

2. PLANNING FOR A METROPOLITAN UNIVERSITY
Loring M. Thompson
Doctor's thesis, April 1956
University of Chicago, Program of Education and Research in Housing
No previous Digest report

Research Problem. The role of strategic planning in forming basic organizational goals for the development of a metropolitan university (University of Toledo)...the reasons for the existence of strategic planning, its possible alternative forms, types of problems encountered etc....not concerned with curriculum planning, but rather with such matters as planning for the existence of programs or curriculum studies ...focuses on the process of strategic planning.

Method of Study. Author had a regular, responsible position in the organization from which vantage point he carried out his investigation--an "interning scientist".

Major Findings. "Since strategic planning is concerned with the formulation of basic organizational goals, it cannot be rational in the same way that administrative planning is rational,"...the latter

seeking efficient and effective ways to achieve the goals produced by the process of strategic planning. "The approach, viewpoints, and type of knowledge that are appropriate to administrative planning may not be sufficient or pertinent for strategic planning." Thus, those who have their functions geared to present goals have difficulty in participating in strategic planning "for new goals of tomorrow". New developments in internal communication media may help bring these two functions closer together. Author found that strategic planning was most effectively promoted if the top leadership in the organization made some of their time available for considering new developments; a variety of formal and informal procedures were utilized for this purpose.

3. THE SPATIAL STRUCTURE OF ECONOMIC DEVELOPMENT IN THE TENNESSEE VALLEY REGION 1930-1950
John R. P. Friedman
Doctor's thesis, published as Research Paper No. 1, Program of Education and Research in Planning, University of Chicago, Chicago, Illinois, 1955
University of Chicago, Program of Education and Research in Planning
Previous Digest report: Item No. 4, Volume 2

Research Problem. Within a given region, where does development tend to occur and for what reasons does it assume the specific locational pattern found therein?

Method of Study. Based largely on population and industrial census statistics, the study looks at a region of 201 counties, the Tennessee Valley area, analyzing on the one hand changes in the distribution of manufacturing and service employment, population, and income to get at reasons underlying the process of differential change, and on the other hand, examines the emerging structural pattern for its influence on the rates of growth of regional subareas. It points up implications for regional planning in the Tennessee Valley.

Major Findings. From 1929 to 1950 rapid industrial growth in the area had a marked selective geographical pattern, "with the bulk of new employment locating in metropolitan areas". Some counter-movement dispersed industry in satellite communities and small industrial clusters within 25 to 30 miles from central cities. The former occurred largely because the metropolitan areas had advantages of accessibility in regard to markets, materials and labor. The latter movement of dispersal resulted from the "large space requirements of modern industrial plants and to the increasing use of the automobile and truck". Metropolitan areas in the region have developed service employment opportunities at a relatively greater rate than rural areas because, from 1940-50, there was a substantially larger employment multiplier (service jobs arising from increased manufacturing) in the metropolitan centers, for a variety of reasons. Population-wise, the region developed marked city regions, which consist of population concentrations in and around large urban cores, an excessive concentration being avoided largely because of recent developments in transportation (chiefly the car and truck) and use of electrical energy. Economic development in the Valley being centered in city regions, the rural

areas were by-passed and no automatic correcting mechanism appeared; the rural incomes remained relatively low despite a smaller population for a relatively constant income. Rural poverty was enhanced by high birth rates, restricted employment opportunities for women, and selective out-migration which resulted in a low ratio of productive workers to the total rural population, accounting for "possibly as much as 60 per cent of the existing difference between rural and urban per capita incomes in the region". The pattern of selective development appears self-sustaining; planned change, as promotion of decentralization, has made little impact, partly because a democratic policy precludes many types of controls over change. Looking ahead as far as 1975, employment opportunities should continue to increase proportionately faster in the chief city regions (10 are listed), which will lead to further population concentrations in the Valley, though within each city region "dispersion of economic activities and population is likely to continue at an accelerated pace". Rural areas in the Valley "face growing poverty...." for they will "share only to a minor extent in the general economic expansion of the region". Because of the emergence of the city region "as a functionally integrated community, interdependent with other city regions...the Tennessee Valley cannot be considered a unified economic region, but may be divided into at least seven areas of metropolitan dominance". The development of metropolitan resources (defined as the organizational resources of a city region, including transportation, space and the organization of community life) becomes the logical concern of planning, instead of emphasis on natural resource development. Planning must work with the functional city regions, and the "concept of the economic region when applied to an area larger than a city region has to be rejected for planning purposes".

(RLM)

4,5,6 CHICAGO AREA TRANSPORTATION STUDY

Dr. J. Douglas Carroll, Jr., and the Staff of the Study

Research underway; publication of technical reports and articles in 1957; final reports in 1958

Chicago Area Transportation Study is an ad hoc agency created to prepare a comprehensive plan for transportation in the Chicago Area. Sponsoring agencies include State of Illinois Highway Department, Cook County Highway Department, City of Chicago, and the Bureau of Public Roads.

By definition, the primary purpose of the C.A.T.S. is to prepare a transportation plan; in tackling so large a task for the second largest city in the U.S., however, success and economy depend on the use of basic research, the understanding and measuring of new truths, and the use of radical new techniques in assembling and processing data. Three basic research programs are underway.

No previous Digest report

4. LAND USE AND TRAFFIC GENERATION

Research Problem. To determine the traffic generation potential of land uses of various types so that formulae can be developed which will predict accurately future traffic from planned or predicted future land use; to understand the interlocking effects of alternative transportation or land use development policies; and possibly to develop a comprehensive underlying theory of urban transportation and structure.

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Previous Relevant Research. Technical memoranda, Detroit Metropolitan Area Traffic Study. Studies by Automotive Safety Foundation and U.S. Bureau of Public Roads. Robert B. Mitchell and Chester Rapkin, Urban Traffic - A Function of Land Use, Columbia University Press, 1954.

Hypotheses. Traffic generation is a function of land use, which in turn is an expression of the spatial separation of functions necessary to the life of an individual or family in an urban area. The distribution of land use and its specialization condition the amount of traffic generation and its distribution over transportation systems.

Method of Study. Land use survey, summarized by block and quarter square mile; home interview survey, directly relating trips to land use and to purpose of trips. All data on cards for machine processing. Both land use survey and sampling are drawn from data made available by the two electric utilities in the Area; all these data are in card form and will be put on electronic (magnetic) tape to make possible bulk amassing of data with a speed not hitherto possible. (RLC)

5. DISTRIBUTION OF TRAFFIC

Research Problem. To determine the distribution of trips generated by land uses between zones of origin and destination; to determine distribution of trips between different modes of transportation; and to determine flows of trips on networks of transportation routes.

Previous Relevant Research. Thomas J. Fratar, "Vehicular Trip Distribution by Successive Approximations" in Traffic Quarterly, January 1954. Various other types of analysis will be tested to determine their applicability.

Hypotheses. The distribution of trips is a function of land use and its distribution; density; relative frictions between sections of the city; relative frictions on alternative means of transportation; and many other factors.

Method of Study. Using high speed calculators, data will be fed in for multiple correlation and other more directed analytical methods. These data will include three principal types: land use data; data on capacities and frictions of existing or proposed transportation systems; and existing relationships between land and the use of transport facilities of various types as determined by the o-d survey. Formulae will be developed and methods proposed whereby distribution of trips can be predicted from given land use projections. (RLC)

6. STRUCTURAL ANALYSIS OF URBAN DEVELOPMENT

Research Problem. To determine the ways in which a Metropolitan Area will grow, or the location of given increments of population under different systems of transportation development, and how new growth conditions and is conditioned by transportation development.

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Hypotheses. There exist strong forces which govern the rate of development of land and its pattern of development; among the strongest of these is the means of transportation available to interconnect parts of the city.

Method of Study. To develop relationships between accessibility, land value, land use, and times and costs of transportation (if possible) through the study of historical trends, present-day relationships as obtained from the home-interview survey, and other factors. (RLC)

7. DEVELOPMENT OF STANDARDS FOR DELIMITING POTENTIAL INDUSTRIAL SITES
Raymond E. Murphy
As research progresses results will appear in one or two articles.
Project is an outgrowth of an inventory of potential industrial sites in Springfield, Chicopee, and seven nearby towns in Massachusetts. This was done under contract with Future Springfield, Inc. The project now being carried on is private research.
No previous Digest report

Research Problem. The project is an attempt to set up the best possible standards for delimiting potential industrial sites. Such sites are defined as areas suitable but not necessarily available for industrial development. A potential site is a single area suitable for development regardless of whether it may eventually be used by one factory or several. The factors being considered are size, relief, drainage, freedom from conflicting intensive use, availability of transportation, and access to municipal water, sewerage and power. In addition highways, railroads, major streams, power line right-of-ways, etc., are considered as limiting the extent of each site. The problem is to set up the most effective possible standards for each of these factors. For example, is 6% a good limiting slope or would land with 10% slope be usable? What minimum diameter of water main is satisfactory for the average plant? How wide must a highway be to constitute adequate access?

Previous Relevant Research. Victor Roterus did some work of this sort for the Cincinnati Planning Board and this was described in a Planning Board report on industrial areas. Also, Breese in his work on Burlington County, N.J., was attacking the same problem.

Method of Study. Largely a matter of taking factor after factor and attempting through interviews and field work to set up the most effective limits.

Major Findings. Nothing final as yet. We have done enough, however, to be sure that such an approach can do much to outline the most valuable potential industrial sites in an administrative area, and to evaluate them relatively, thereby serving as a guide to planners in decisions as to the sections to be zoned for industry. (REM)

8. AN APPROACH TO LONG-RANGE SCHOOL PLANNING, WITH SPECIAL REFERENCE TO NEW YORK CITY
Seymour J. Schulman (under direction of J. Marshall Miller)
Master's thesis, May 1954

Columbia University, School of Architecture, Planning and Housing Division

Research Problem. To develop a comprehensive statement of content and related technique of a school master plan.

Method and Related Proposals. Suggested form and content of school master plan including: 1) standards relating to organization, location and spacing, site size, community center role, etc.; 2) evaluation of physical plant as to condition and capacity; 3) standardized procedures for analyzing local area needs including study areas, master plan areas and clusters; 4) determination of local area programs; 5) organization of capital budget and program including the establishment of a system of priorities. (JMM)

9. PEDESTRIAN PARKS
Eleanor M. Beling (under direction of J. Marshall Miller)
Master's thesis, May 1954
Columbia University, School of Architecture, Planning & Housing Division

Research Problem. To trace the development, use, and possibilities of parks and green areas planned primarily as pleasant and safe areas for walking from one place to another--such as home to school, to shops, to places of work.

Definition. (By the author) "A pedestrian park is a green area penetrating and going through a neighborhood or area, which links and provides safe access to homes and facilities. It is designed for pedestrian traffic only, including mothers with small children, school children, the worker on the way to his job, the pleasure-walker, and many others. It provides grade separations at street intersections, passive recreation areas, small beauty spots, and the shortest routes possible for better inter- and intra-neighborhood communication." (JMM)

10. LOCATIONAL FACTORS FOR THE OFFICE FUNCTION OF INDUSTRY
Alfred E. Tumminia (under direction of J. Marshall Miller)
Master's thesis, May 1953
Columbia University, School of Architecture, Planning and Housing Division

Research Problem. The purpose of this study was to examine what is occurring to business activity, in order to assess the changing needs for office space and location.

Organization of the Study. The study was organized in three parts: 1) analysis of the office function in industry; 2) analysis of office location concepts, practices and controversies; 3) presentation of office location factors and concluding statement. (JMM)

11. MEASURES PREREQUISITE TO THE DEVELOPMENT OF LAND AND WATER IN IRAN
M. Ali Adibi (under direction of special committee of the Graduate Faculties of the University)
Doctor's dissertation, January 1955

Columbia University, Graduate Faculties and School of Architecture, Planning and Housing Division

Problem and Purpose. The primary problem in Iran is, in actuality, a combination of two problems: maldistribution of land ownership, with great insecurity of tenure, and the lack of an integrated and organized plan for the development of water resources. Both are further complicated by the absence of regulations providing for settled titles to land and water, plus the lack of adequate legislation on water rights. These are major obstacles to a national development of regional resources.

This study is an endeavor to present one concept of planning which could bring a real solution to this pressing problem of land and water. This extensive plan will incorporate in it the possible regionalization of the country into logical subdivisions in order to resolve in the most direct and immediate way the exigent factors of each region. The needs of the individual regions could be met at the same time that the goals for the entire country were being achieved.

Organization of Study. The study is divided into three parts: 1) a survey of existing conditions with a definition of the real problem; 2) an evaluation of what has been done in the past in the way of development; 3) suggestions of ways and means of expediently solving this vast problem, based on the analysis of existing conditions and the evaluation of former plans. (JMM)

12. AN APPROACH TO CONTEMPORARY URBAN PLANNING
Harry A. Anthony (under direction of special committee of the Graduate Faculties of the University)
Doctor's dissertation, December 1955
Columbia University, Graduate Faculties and School of Architecture, Planning and Housing Division

Scope. Addressed mainly to young men and women who are being trained for the profession of planning, the dissertation is presented in the form of a primer having as its purpose to introduce the subject of urban planning, to describe and evaluate the current planning movement in the U.S.A., and to present a methodology of work for solving planning problems. (JMM)

13. SOCIAL SCIENCE APPLICATION TO HOUSING DESIGN
Glenn H. Beyer and Thomas W. Mackesey, Co-Directors; James E. Montgomery, Field Study Director
Publication: Houses Are for People, Cornell University Housing Research Center, $1.75
Cornell University Housing Research Center, sponsored by Russell Sage Foundation, with National Association of Home Builders cooperating in publication.
No previous Digest report

Research Problem. To obtain a better understanding of the nature of social housing values and attempt a tentative application to housing design.

Method of Study. a) Delineate and develop housing value concepts. b) Develop a testing instrument for measuring the values. c) Apply the results in housing design. The field testing was undertaken among 1000 families in Buffalo, New York, with separate interviews for husbands and wives of each family.

Major Findings. Nine housing values were finally selected, and tested in field study: a) economy, b) family centrism, c) physical health, d) aesthetics, e) leisure, f) equality, g) freedom, h) mental helath, i) social prestige. Each was found to exist in different degree in different individuals. In an attempt to obtain mutual exclusiveness, the "economy" group was kept separate; the physical health, mental health and family centrism groups were combined into a "family" group; aesthetics, leisure and equality groups into a "personal" group; and social prestige was kept separate. ("Freedom" was omitted in the final grouping because it was found to be ranked high by almost everyone.) The characteristics of these combined groups served as the basis for new design guides.

It was also found that housing environment must satisfy two opposing needs--a need for privacy and a need for sociability. Ample space outside the house, freedom from traffic noises and industrial hazards rated high, as did outdoor play space for children, "neighbors of good standing", and "right kind of playmates for children".

In relating housing to other needs, the choice favored housing expenditure over "many nice clothes" and "expensive vacations". However, a college education for children generally rated ahead of housing. (GHB)

14. CRITERIA FOR IMPROVED HOUSING DESIGN BASED ON FAMILY LIVING CHARACTERISTICS
Glenn H. Beyer
Field survey undertaken in summer of 1955; analysis underway; end: 1957
Cornell University Agricultural Experiment Station and Housing Research Center
No previous Digest report

Research Problem. To determine specific patterns of family living including habits and motives underlying different family activities as they are related to housing design and environment.

Previous Relevant Research. Social Science Application to Housing Design (C.U. study).

Method of Study. The techniques developed for the study, "Social Science Application to Housing Design" were refined and tested in field survey in the Binghamton-Endicott-Johnson City area of New York State during the summer of 1955. Approximately 1000 new homeowners were interviewed. The study includes an attempt to obtain certain longitudinal information including dissatisfactions with previous house and location, description of house purchased, features searched for when looking for a new house, and features which would be desired

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in next house. An attempt is made also to refine certain techniques developed earlier, under Housing Research Center projects, to obtain some empirical data on the family's psychological reaction to such factors as noise, odor, disorder, overcrowding, and so on. (GHB)

15. ADMUSTMENTS IN THE RURAL HOUSING INVENTORY IN SELECTED REGION OF NEW YORK STATE
Glenn H. Beyer
Field study undertaken in summer of 1955; analysis underway
Cornell University Agricultural Experiment Station and Housing Research Center
No previous Digest report

Research Problem. The continuing trend toward farm mechanization and larger farms probably has resulted in a surplus of farm houses. The purpose of this study is to determine the disposition and utilization of those houses, including nonfarm use.

Method of Study. A sample of approximately 800 open country houses and their occupant families in the Central Plains area of New York State were selected for study. Data were collected on housing conditions, facilities and equipment and of occupation of head of household, last place of residence, years in house and commuting patterns (if head of household has a nonfarm occupation). It is anticipated that it will be possible, from these data, to throw some light on a future economic and social use pattern of these houses. (GHB)

16. DETROIT METROPOLITAN AREA TRANSPORTATION STUDY
Dr. J. Douglas Carroll, Jr., and the Staff of the Study
Research completed and published under title of "Report on the Detroit Metropolitan Area Traffic Study"; Part I printed July 1955, Part II, April 1956
The Detroit Metropolitan Area Traffic Study was sponsored by the Michigan State Highway Department, the Wayne County Road Commission, the City of Detroit, and the Bureau of Public Roads. For copies of the report write to: J. Carl McMonagle, Director, Planning and Traffic Division, Michigan State Highway Department, Lansing, Michigan.
Previous Digest report: Items 22, 23, 24, Volume 1

Research Problem. To determine the distribution of person-trips in the Detroit Metropolitan Area, the relationships between land use and trip generation and distribution, and from these to prepare a plan for expressway facilities. A major problem was to develop predictive formulae for future trip generation, to assign traffic to expressway systems, and to develop a rational method for setting up construction priorities.

Method of Study. Origin-destination survey, primarily conducted by home interview. The reports contain good descriptions of the techniques used in analyzing the data.

Major Findings. Significant relationships were discovered between land use and trip generation, and between such variables as cars per

dwelling unit, distance from city center, income and density. See especially Chapter V, Part I. (RLC)

17. COMPARISON OF RESPONSES TO MAIL QUESTIONNAIRES AND PERSONAL INTERVIEWS IN CONSUMER SHOPPING HABIT SURVEYS
M. G. Parsons, Jr. and Robert Ferber
Concurrent mail and personal interview surveys being conducted in several Illinois towns in connection with community development programs
Bureau of Business Management and Bureau of Economic and Business Research, College of Commerce and Business Administration (under grant from University Research Board and partially financed by respective communities), University of Illinois
No previous Digest report

Research Problem. To determine differences in responses and representativeness of samples between self-administered survey questions and personal interviews, among retail consumers in given urban areas.

Method of Study. Mail questionnaires sent to large segments of residences in given communities. Respondents fill out schedules and return in franked envelopes to BBM for tabulation. Personal interview team interviews a pre-selected, representative sample of consumers in same community. Results compared. Differences delineated.

Major Findings. Project not completed. (RGS)

18. VEHICULAR SPEED REGULATION
John E. Baerwald
Project just initiated, progress report expected January 1957
Conducted by the Department of Civil Engineering, University of Illinois in cooperation with the Illinois Division of Highways and the Bureau of Public Roads
No previous Digest report

Research Problem. This study is concerned with the investigation of the problem of vehicular speed regulation in urban and rural areas in the State of Illinois. The general objectives of the study are a) to determine the factors involved in regulating vehicular speeds, b) to evaluate these factors and to establish warrants for the regulation of speeds and c) to develop procedures for the application of these warrants.

Method of Study. Now being developed. Will include preparation of an annotated bibliography, field evaluations of existing conditions, and field experimentation with warrants to be developed by the study. (JEB)

19. LAND USES IN SMALL ILLINOIS COMMUNITIES
Research still in progress. Initial stages to be completed by June 1956
Investigation conducted by the Department of City Planning and Landscape Architecture and the Bureau of Community Planning at the University of Illinois
No previous Digest report

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Research Problem. This investigation is directed toward determining actual land uses in small Illinois communities. From this, an attempt will be made to devise a meaningful land use classification system for our small cities. An eventual result may be the production of a simplified land use manual to be put into the hands of interested communities to give them an understanding of their land use problems and to assist them in making their own land use survey.

Method of Study. A careful inventory of the land uses of ten selected test communities was made by graduate students from the Department of City Planning at the University of Illinois. These uses were compiled and will be analyzed to determine a suitable classification system. This new system will be checked in the field in other communities for validity.

Major Findings. To date, investigation indicates that small communities do have uses peculiar to the population range with which the project is dealing--1000 to 8000--and therefore that modification in land use classification systems devised for larger cities should be explored. (LBW)

20. PRE-BUILDING GROWTH PATTERNS OF CHICAGO
Jerome D. Fellman
Research completed, submitted for publication in article form
Conducted with support from the University Research Board, University of Illinois, and with the assistance of the Chicago Title and Trust Company, Chicago, Illinois
No previous Digest report.

Research Problem. This study traces the temporal and areal patterns of preparation of non-urban land for urban use in Chicago. Attention is directed primarily to initial subdivision and sale of lots to individuals and secondarily to resubdivision. Five questions are the basis for the study: 1) to what extent was pre-building(i.e., before occupance of land by actual urban structures) growth of Chicago uniform in rate and direction from the original town to present corporate limits; 2) to what extent were the growth patterns related to location of inter- and intracity transportation lines, municipal parks, and outlying settlement nuclei; 3) to what extent were there prolonged delays between the respective stages of land preparation and what areal patterns, if any, did those "time-lags" present; 4) to what extent did "booms" in subdivision or sale contribute to the developing growth patterns; and, 5) to what extent do the pre-building growth patterns of Chicago correspond to current theories of physical expansion of cities?

Method of Study. Basic data were secured from the records of the Chicago Title and Trust Company and were computed from land records for the northwest one-quarter of each quarter section of the city; the figures for the date of each stage of land development calculated for each sample area were extended to include the quarter-section in which the sample area lay. These data were the basis of three primary maps: initial subdivision, resubdivision, and individual lot sale: showing the gross pattern of pre-building development of Chicago. These data were further used in preparing 16 other maps showing the extent of

temporal correlation (and thus presumed attractive power) between several forms of transportation lines, municipal parks and major settlement areas and the occurrence of initial subdivision and individual lot sale proximate to the investigated attractors.

Major Findings. The pre-building growth patterns of Chicago were found to be irregular temporally and areally, with the degree of irregularity increasing from earlier to later stages of land development. Intercity transportation lines were effective as localizers of initial subdivision; local transit lines were closely correlated with patterns of individual lot sale; no regular pattern of "time-lag" exists. Since "booms" in subdivision and sale disrupted gradual expansion, no close correlation with idealized physical growth patterns is found. (JDF)

21. STUDY ON PRINCIPLES AND METHODS OF ANALYSIS FOR RESOURCE PROBLEMS WITH PARTICULAR EMPHASIS ON REGIONAL RESOURCE PROBLEMS
Walter Isard
A Five-Year Study sponsored by Resources for the Future, Inc.
Previous Digest report: Item No. 21, Volume 2

Research Problem. To study systematically and comprehensively existing and emerging concepts, methods, tools, techniques of analysis, and theories in the several social sciences, particularly economics, in order to develop more productive approaches and methods in acquiring insights in the solution of pressing resource problems. The problems around which the proposed research are to center are those associated with the larger-type geographic regions. The approaches and methods to be developed, however, should be directly applicable to the analysis of problems of urban-metropolitan regions as well.

Method of Study. The following techniques, theories, methods and approaches are to be carefully studied to identify their stronger elements and the potential usefulness of these elements for resource problem studies: a) Gross Regional Product (GRP) projection techniques; b) Regional and interregional input-output (interindustry) analysis, Requirements approach; c) Linear programming (activity analysis), operations research techniques, game theory; d) Spatial interaction and gravity models; e) Industrial Complex analysis.

As the stronger elements of each technique, theory, method or approach are identified, ways in which they may be fused and interwoven into an eclectic but suprior approach are to be explored. (WI)

22. COSTS AND REVENUES RESULTING FROM COMMUNITY GROWTH
Walter Isard and Robert E. Coughlin
Research report to be published in April or May of 1956 by the Federal Reserve Bank of Boston

Research Problem. This study reports the additional municipal costs and revenues resulting from certain types of urban growth.

Method of Study. A theoretical model is constructed in which are identified the major factors which determine the physical requirements for roads, schools, and sanitation facilities in hypothetical areas in

which new growth occurs. Materials describing the cost functions and revenue potentials which communities face are presented as guideposts which are applicable to small and medium-sized communities in general.

For roads, schools, and sanitary sewerage facilities, capital outlays data are developed with emphasis on variation in level of service and economies of scale. For various hypothetical communities annual cost of capital outlays is then derived on the basis of both typical financing arrangements and real cost. In addition, annual maintenance and operating costs by type are estimated.

For all other services--police and fire protection, public welfare, health, general control, recreation, etc.--capital and operating costs are lumped together.

The local government is treated as a firm which must balance costs against revenues. Potential revenues are estimated by use of a general revenue rate based primarily on property tax rate of U.S. cities of 25,000-50,000 population. These tax rates are adjusted, however, to reflect 100 per cent valuation of property and to cover all sources of income. Valuation of dwellings, commercial facilities, and industrial structures are based respectively upon personal income of residents, expected consumer expenditures, and typical industrial investment structures. Hypothetical revenue rates required to meet costs in various types of hypothetical communities are also calculated.

Most attention is given to communities which are wholly new, although procedures for applying the cost and revenue estimation methods to existing communities undergoing change are sketched.

Major Findings. Major findings relate to the cost function which communities face in providing various municipal facilities and services and to the revenue rates which communities must charge in order to maintain financial balance while providing various levels of municipal service. Major attention is given to the effect of industrial development upon revenue rates. (WI and REC)

23. JOURNEY TO WORK IN THE NEW JERSEY-NEW YORK-CONNECTICUT METROPOLITAN REGION *

Henry Cohen, Max E. Anderson, Henry Fagin

Field work to be completed in April 1956; report to be published by August, 1956.

Being conducted by the New York Regional Plan Association for the Metropolitan Transit Survey

No previous Digest report

Research Problem. What are the present patterns and recent trends in the daily travel between home and work throughout the 22-county metropolitan region? How many such trips occur within single counties, and how many involve each pair of counties? What differences in work trip patterns correspond to differences in employee work classification, industry group, size, age and location of plant, and other related factors? What opinions do various segments of employees hold as to the mass transit facilities they require?

Method of Study. Questionnaires, each requiring 10 minutes to fill out, are being mailed to a sample of establishments of all kinds throughout the metropolitan region (4000 plants) to be distributed among a sample of the employees in each plant (33,000 total), collected and mailed back by a plant official. The returns will be machine-processed and then interpreted into findings of significance to the Transit Survey. (HF)

24. ZONING ADVANCES IN THE NEW JERSEY-NEW YORK-CONNECTICUT METROPOLITAN REGION
Henry Fagin, Cynthia Philip, C. McKim Norton
Research completed. RPA Bulletin to be published in April 1956.
Regular New York Regional Plan Association project
No previous Digest report

Research Problem. What unconventional zoning methods are being experimented with in the New York metropolitan region and at what new planning objectives are they aimed?

Hypothesis. With growing experience in zoning, municipalities are moving steadily in the direction of greater detail and precision in development regulation. It is possible that the current measures no longer remain within the established legal framework of zoning.

Method of Study. A file was initiated as the basis for a permanent and continuous analysis and record of new zoning ideas within the metropolitan region. Zoning ordinances from among the 550 local municipalities were read and clipped. Planning consultants and planning directors in the region were questioned as to their recent examples of advanced zoning ideas.

Major Findings. Many zoning devices recently initiated are proving useful and working effectively within the established legal framework of zoning already settled in the law. Other devices appear desirable and feasible but in violation of fundamental zoning tenets which therefore warrant reexamination in certain respects. Still other devices, which are becoming widespread, not only violate traditional legal concepts of zoning but seem to constitute bad planning as well. (HF)

25. ECONOMIC BASE THEORY AND URBAN DEVELOPMENT
Ralph W. Pfouts and Nancy H. Dahl
Research to be carried on over next two-year period
Project of Urban Studies Committee, Institute for Research in Social Science, University of North Carolina
Previous Digest reports: See description of Committee program, Item No. 15, Volume 2, and Item No. 34, Volume 1.

Research Problem. The objectives of this research fall under three headings: 1) a comprehensive statement of base theory, 2) an examination and weighing of base theory as an economic theory, and 3) a series of empirical tests of base theory. The ultimate purpose of this research is to establish whether this particular system of

analysis offers a wholly satisfactory means for explaining urban development. In fulfillment of the first objective, a concise restatement of the concept will be made from available writings on base theory, particularly as it seeks to explain its urban growth and development thesis. The second objective will involve the development of the logical implications of base theory so that these implications can be compared with general economic theory to determine whether base theory implies anything contrary to known facts or accepted beliefs in economics. The third objective, empirical testing of the base theory, will be largely a matter of devising and applying statistical tests of the thesis that expansion in basic industry and urban development go hand in hand.

Previous Relevant Research. Work of Homer Hoyt, Richard B. Andrews, John W. Alexander, and others. (FSC)

26. SUBURBAN GROWTH AND THE EXTENSION OF MUNICIPAL SERVICES
George H. Esser, Jr., David L. McCallum, and Ruth L. Mace
Expected completion, 1956
Project of the Institute of Government, University of North Carolina
No previous Digest report

Research Problem. An investigation of alternative solutions to the problems involved in the extension of municipal services to urbanized and urbanizing areas beyond the corporate limits of middle-sized cities and small communities characteristic of the State of North Carolina. Research was originally undertaken at the request of the City of Greensboro (population approximately 100,000) which wanted answers to questions such as where and how much to annex. The Institute Study, however, is considerably broader in scope, including a comprehensive analysis of the Greensboro metropolitan area. Findings in the Greensboro area will later be supplemented by studies in a number of other cities in the state ranging in population from 10,000 to 90,000. Attention is being focused on these questions:

1. Level or quality of services: Are city-type services of a uniform quality needed throughout the metropolitan area? What quality or level or service is needed in different parts of the study area, taking into account all relevant factors?

2. What is the cost of providing services as needed throughout the area?

3. What is the relationship between cost incidence in the study area and the tax structure of the city and county? What effect does difference in level of service required have on the cost-revenue patterns?

4. What adaptations in governmental structure for the metropolitan area can be devised to permit extension of services where needed, at the level needed, without a strain on the tax structure and without destroying the basis for securing metropolitan-wide performance of functions important to the whole metropolitan area?

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Method of Study. Two detailed specialized studies have been undertaken as part of this general research. These are being submitted as Master's theses (1956) to the Department of City and Regional Planning of this University. The first, "A Case Study of the Cost of Governmental Activities in Single Family Residential Areas of Different Densities", is the work of David L. McCallum. This "contains the development of a methodology for analyzing costs of governmental activities in residential areas and a case study application of the methodology in determining the variations in costs brought about by variations in design, density and degree of development of single-family residential areas in the Greensboro metropolitan area".

The second study is the work of Ruth L. Mace. This is a survey and critical examination of studies relating costs of providing municipal services to specific areas or categories of land use to revenues to be derived from these areas or land use categories. Research was designed to discover what studies have been made, and by whom; what methods were employed in the development of these studies; what conclusions and recommendations were arrived at; and what applications have been made of these research findings. In essence, the so-called "cost-revenue" study is examined, as a type of planning study, to determine its utility as a tool for the land use planner or for other purposes.

Major Findings. At this time, several findings may be cited. Application of McCallum's cost study to the tax structure in Greensboro disclosed the following results:

1. An analysis of service policies in the city reveals that costs of providing municipal services to residential areas of varying densities differ significantly from the equivalent cost of servicing commercial and industrial areas.

2. Under the existing tax structure in Greensboro, and under existing benefit assessment policies in the city, new subdivisions, composed of homes costing $7,000 or more and developed to at least 70% of capacity, will return revenue over a 20-year period at least equaling and in most cases exceeding the annual operating and amortized capital costs of providing services to such subdivisions.

Different results can be expected in other cities due to the differences in local tax structure, benefit assessment policies, levels of service provided, and subdivision policies in effect. (GHE)

27. METROPOLITAN GROWTH AND THE CONVERSION OF LAND TO NONAGRICULTURAL USES
Donald J. Bogue
Just completed. Published as a monograph by Scripps Foundation, Miami University, Oxford, Ohio
No previous Digest report

Research Problem. For many years, students of both urban and rural land use have speculated about the rate at which large cities

were absorbing land in their peripheries as they grew. The present research arrives at estimates of the number of acres of land converted per 1000 population increase under present conditions. (DJB)

28. THE CURRENT POPULATION OF COUNTIES, CITIES, AND SUBAREAS WITHIN CITIES IN ILLINOIS, BY AGE AND SEX
Beverly Duncan and Donald J. Bogue, Population Research and Training Center, University of Chicago, Chicago, Illinois
To be completed May 15, 1956
No previous Digest report

Research Problem. Now that the 1950 census is five years out of date, there is a growing demand for estimates of current population of local areas. A new procedure for arriving at such estimates has been devised. It yields not only an estimate of the total population, but also provides estimates by age and by age-color and sex for larger populations. Using this procedure, annual estimates for each year since 1950 to the present are being prepared for: a) Each county in Illinois, b) Each city of 10,000 or more inhabitants in Illinois, and c) Each of 75 community areas (grouping of similar census tracts) within the City of Chicago. Where there are large Negro populations, the estimates will be by age and color, and in the largest units will be by age-color-sex. (DJB)

29. LOCAL ORGANIZATION FOR URBAN RENEWAL
George Duggar and others
Research conducted at the Bureau of Public Administration, University of Wisconsin, under a grant from the Housing and Home Finance Agency to cover two-thirds of the cost. Grant approved, terms of "contract for grant" under negotiation as of March 30, 1956. Research to continue for 16 months following agreement on terms.
No previous Digest report

Research Problem. The purposes of the research are twofold: 1) to contribute to the scholarly study of public administration; 2) to make a direct contribution to the working knowledge of persons actively engaged in urban renewal and to stimulate them to organize more effectively for it.

1) A question now quite unsettled in public administration is the role of the administrator in policy determination. If administrators at all levels play some part in policy-making, how does his position in an organization define the policy role of an administrator, and what are the variables in organization which affect it? The present research is intended to cast light on this question by showing the policy-making and organization and morale-building activities of urban renewal officials, and by noting differences in such activities in different situations.

2) The study will report how selected localities have organized for urban renewal and how the organizations have evolved when set up in different ways. This should serve to broaden appreciation of the

alternatives and stimulate innovation where problems are met locally under existing arrangements.

Hypothesis. 1) It is now widely recognized that at each level of administration there is a broad range of functions. Like the entrepreneur, the administrator himself performs roles in production, utilizes the products of others, and creates new units or enterprises. 2) The administrator participates in making policy. The potentialities of a situation, while limited during a limited period of time, are not wholly determined. They may be achieved only to the extent that administrators perceive and act on them. 3) The "organization" (or habitual relations of the renewal unit to the rest of local government and to the power structure of the community) will affect the efforts of renewal administrators.

Method of Study. An organization can be understood by starting with a recognized unit, describing its own internal administration, the way others determine and utilize it, and then proceeding to examine the way it determines and uses other units. It is planned to follow this approach in making the analysis of each selected renewal program. The approach permits description of "disfunctional" (hindering) activities as well as ones positively functional for renewal. The approach therefore provides for description of conflict as well as cooperation. (GD)

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# RESEARCH

# DIGEST

Sponsored by the
Urban Planning Research Group

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Urbana, Illinois

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## EDITORIAL NOTES

Digest Aims (reprinted from Volume 2-No. 1, April 1955). If it is possible to identify the content emphasis of the RESEARCH DIGEST, its founders in all likelihood would agree that its primary focus is upon urban-oriented research, from whatever discipline or field which advances understanding of the growth and development of urban areas and the theory and practice of urban planning. The Digest is intended to be a researcher's medium of exchange and communication in which current research -- pending, in progress, or recently completed -- is summarized. It reports primarily on the work of faculty researchers of research staffs either university or agency, although it carries a few abstracts of student dissertations and theses where the work is directly related to on-going staff research activities of the institution or is considered by the reporting institution to have significant reference value to others engaged in research.

The Editorial Board. At the meeting of RESEARCH DIGEST contributors in Providence last May, it was agreed that there should be a continuing Board of Editors responsible for policy on content, subscription fees, location of publication headquarters, and the appointment of the editor.

The editorial board selected was as follows: Stuart Chapin and Donald Foley for one year; Martin Myerson and Harvey Perloff for two years; and Gerald Breese and Paul Reid for three years . . . Terms to begin July 1, 1956 and all new appointments to be for three-year terms. The Board members, within the following limitations, would designate new members to replace those who retire each year --

(a) No more than one member from any university or state.
(b) A board member could not serve two terms in succession -- nor could two members of the same department or agency staff hold terms in direct succession.
(c) At least four of the six members are to chosen from departments of city or regional planning or from urban research units at United States Universities.

The Board comprises the six members designated by the meeting at Providence and the Editor, Louis B. Wetmore, selected by the Board which also determined that publication headquarters will continue at the University of Illinois.

Credit Lines. Contributions to the Digest will be strengthened in the future by participation of the members of the Urban Research Committee of the Highway Research Board. Additional sources will also be identified through the survey of planning research activities being made by Harvey Perloff at Resources for the Future, Inc.

Contributions to this issue which appear in the table of contents are gratefully acknowledged herewith. It should be noted that correspondents for Columbia University, Princeton University and the Philadelphia City Plan Commission were heard from, although no new projects are being added at this time. Major responsibility for this issue has been shared by Professor William Goodman and Mrs. Elaine Russell, Secretary of the Department of City Planning and Landscape Architecture.

Louis B. Wetmore

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30. ALTERNATIVE METROPOLITAN SPATIAL STRUCTURES
Catherine Bauer, George Duggar, Donald L. Foley, Harvey Leibenstein, and Melvin M. Webber
Research to be completed by summer, 1957.
Conducted at the University of California under a grant from Resources for the Future, Inc.
No previous Digest report.

Research Problem. Selectively to explore the spatial organization of metropolitan communities. The object is to develop one or more conceptual schemes that will facilitate description and analysis of actual and possible spatial structures. The study focuses on both form and function, and their interplay. Selected dimensions of metropolitan spatial structure are being examined. Particular emphasis is placed on institutional, technological and physical factors that affect and are in turn affected by the spatial arrangements of activities. Alternative spatial structures are studied in order to appraise their relative merits as bases for public policy. (MMW)

31. ECONOMIC DEVELOPMENT AND URBAN LIVING CONDITIONS
Catherine Bauer
Working paper circulated in draft form at the Urbanization Conference in Bangkok last summer. Now being revised for publication by the U. N.
Sponsored by the Housing, Building and Planning Branch of the United Nations.
No previous Digest report.

Research Problem. How to promote general improvement in urban living conditions in developing countries with limited resources.

Previous Relevant Research. The whole field of urbanization in developing countries has been more or less neglected until quite recently. Interest has been growing, however, and the Bangkok conference produced some significant material.

Hypotheses. That the physical pattern of land use, economic development, population distribution and urbanization is itself a key factor in future urban welfare, and that this pattern is largely shaped by public decisions in any case.

Method of Study. An attempt to assemble and to collate a great deal of variegated material directly or indirectly pertinent to the question of urban living conditions.

Major Findings. Tentative conclusion is that regional land-use planning coordinated with location policies for public works and industry is probably a prime necessity. (CB)

32. A METHOD OF FORECASTING INTRO-METROPOLITAN COMMUTER TRAVEL
Melvin M. Webber
To be published as journal article.
Based upon studies completed by Parsons, Brinckerhoff, Hall and Macdonald for the San Francisco Bay Area Rapid Transit Commission.
No previous Digest report.

Research Problem. To formulate a method of forecasting home-to-work trips for use in designing locations and capacities of intra-metropolitan transportation facilities.

Major Hypotheses. Commuter travel volumes and spatial travel patterns are functions of the spatial distribution of jobs, the spatial distribution of employed residents, and the time-distances between places of work and residences.

Given a long-range, general plan for the spatial structure of a metropolitan area, forecasts of numbers of jobs and forecasts of numbers of employed residents can be derived (each by location, by occupation and/or by industry). When paired and tested against travel times on alternate possible transportation systems, forecasts of commuter travel volumes and spatial patterns of commuter trips can be derived. These can readily be converted to peak-hour volumes and patterns and use in designing those facilities that carry their peak loads during weekdays. (MMW)

33. USE-DISTANCE STANDARDS FOR SELECTED RECREATION FACILITIES IN EAST OAKLAND
Edward M. Handschin (under direction of Donald L. Foley)
Master's thesis, June 1944.

Research Problem. To report the differentials in distance traveled, travel time, mode of travel, and frequency of use for four indoor recreation centers in Oakland, California. The main factors by which the above variables are cross-tabulated were age and sex of the user, and type of activity. As a result of this empirical study certain standards for locating such centers within a city are suggested. (DLF)

34. GROWTH OF THE SAN FRANCISCO BAY AREA URBAN CORE
Marybeth Branaman
Research Report 8, Real Estate Research Program, Bureau of Business and Economic Research, University of California. Published November, 1956. Price $1.75 per copy.
Previous Digest report: Item No. 31, Volume 1.

Research Problem. A number of studies in the field of urban land economics undertaken or in process by the Real Estate Research Program have used the San Francisco Bay Area as a "laboratory." In order to provide a physical background for these studies the present study was designed to survey land use trends in the area, to explore some of the factors bringing about urban growth and structure, and to consider trends appearing to shape future development.

Method of Study. The central core of the metropolitan area, San Francisco and cities of the urban East Bay, was mapped for three periods of time and considered within the framework of population movement and the distribution of economic activity of the entire metropolitan area.

Major Findings. Against a background of economic activity, physiography, and transportation, many factors have influenced the government and private decisions which control the magnitude and nature of the growth patterns in the area.

Evidence uncovered indicates a changing pattern for population, incomes, and various segments of economic activity in the area in recent years with the greater increase in land use and urban functions occurring in the suburbs rather than in the center of the area. At the same time it was found that the urban core continues to hold a strong position of metropolitan dominance. Although land use movements within separate political jurisdictions were traced, it was found that individual categories of land use are increasingly interrelated to the same uses in other parts of the metropolitan area. For example, residential use within the city of San Francisco must be considered in relation to the tremendous postway subdivision activity in areas outside the urban core as a shortage of space becomes marked in the center and as the journey-to-work is lengthened.

Present theories of growth leave much to be desired and are incomplete as a basis for prediction of future land use trends, and insufficient empirical data which tends to strengthen major general hypotheses of urban growth and lays a foundation for further investigation. (MB)

35. AN ANALYSIS OF THE FINANCIAL FEASIBILITY OF REHABILITATION IN AN URBAN RENEWAL AREA WITHIN THE FRAMEWORK OF AVAILABLE OR POTENTIAL MORTGAGE FINANCING AID
Albert H. Schaaf
Project in initial stages with completion expected May, 1958.
Real Estate Research Program, Bureau of Business and Economic Research, University of California, in cooperation with the U.S. Housing and Home Finance Agency.
No previous Digest report

Research Problem. The study will attempt to establish certain guideposts designed to indicate the economic feasibility of rehabilitating substandard residential properties in declining areas. It will consider the conditions, if any, under which private owners and investors would engage in such rehabilitation and the degree to which the welfare of the urban area would be enhanced as a result.

Method of Study. This has not been fully developed as yet. Among the items to be determined are the current condition of structures, a minimum level of desirable conditions, costs necessary to rehabilitate to this level, the increment in values which will result from rehabilitation, and the possible entrepreneurship and financing which are

available. These aspects will be examined in several specific areas in the city of Oakland, California, and generalizations developed from analysis of the results.

36. FREE PORTS AND FOREIGN TRADE ZONES OF THE UNITED STATES AND NORTHERN EUROPE
Richard S. Thoman
Published as: Thoman, Richard S., Free Ports and Foreign Trade Zones. Combridge, Maryland: Cornell Maritime Press, 1956, 203 pp. $7.00.
Research conducted by Department of Geography, University of Chicago under a grant by the Geography Division, Office of Naval Research.
No previous Digest report.

Research Problem. Lack of a definite trend toward success or failure of our foreign-trade zone movement has prompted a series of questions, resulting in this study of the free port in present-day world commerce. Specifically, is such indefiniteness of trend limited to our own foreign-trade zones, or is it now characteristic of other free ports, particularly in the European nations from which it was borrowed? If so, what might be the causes? If not, what might be the differences? What are prospects for the immediate future of the U. S. zones, in view of European free port records?

Method of Study. All free ports in the United States, Germany, Denmark, and Sweden, and Rotterdam, Holland, were examined, and statistical sources as well as informed persons consulted to determine: (1) trends in significance of the free port as a component of (a) its associated total port and (b) its host country; and (2) the applicability of these trends to the foreign-trade zone system of the United States. A third objective was the learning of alternatives as substitutes for the free port device.

Major Findings. "Free ports and foreign-trade zones of highly industrialized tariff-enclosed nations must demonstrate that they can compete with bonded warehouses or other alternative systems if they are to persevere. . . The outlook for the foreign-trade zones of the U. S. does not appear to be too bright at this time. . .The results of the research have indicated that the United States should not consider establishment of any additional foreign-trade zones until the Great Lakes-St. Lawrence Seaway has become a reality and its traffic has stabilized. At that time, studies should be conducted concerning the over-all efficiency of the foreign-trade zone, as compared with our bonded warehouse system. . .Such studies should be based on the assumption that the greater part of foreign merchandise stored in either the foreign-trade zone or the bonded warehouse would be eventually imported into this country, and that only a small percentage of such merchandise - probably not more than 15% - would be re-exported. If the results of these studies favor continuation of the foreign-trade zone, such a zone should be planned on a scale sufficiently large that it has a valid chance for success. If the results are negative, steps should be taken towards repeal of our foreign-trade zones legislation." (HMM)

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37. GEOGRAPHY OF AMERICAN CITIES: AN URBAN GEOGRAPHICAL TREATISE
Harold M. Mayer
Department of Geography, The University of Chicago
No previous Digest report.

Research Problem. There is at present no systematic treatise on the field of urban geography in English. That field has been rapidly expanding in recent years both as an academic field and as an applied science which has demonstrated its practical value. It nevertheless has lagged behind its sister fields such as urban sociology and urban land economics in that it lacks treatment systematically of its scope, techniques, and applications.

Method of Study. The contemplated treatise would be a more systematic treatment, in enlarged form of the material presented in the urban geography chapter of American Geography, Inventory and Prospect (Syracuse University Press, 1954) and in Chapter 3 of Needed Urban and Metropolitan Research (Scripps Foundation, 1953), together with greater emphasis upon the present knowledge of the methods for study of cities in specifically the North American cultural complex. The principal objectives are to contribute toward the advancement of the field of Urban Geography in the United States and Canada by indicating the present state of knowledge of urban geography and in pointing out gaps which could stimulate specific research projects. (HMM)

38. FUNCTIONAL ORGANIZATION OF THE ADELAIDE REGION, AUSTRALIA
E. M. Bjorklund
Published as: Bjorklund, E. M., Focus on Adelaide; The Functional Organization of the Adelaide Region, Australia. University of Chicago Department of Geography Research Paper No. 41 December, 1955. 133 pp + maps. $3.00.
No previous Digest report.

Research Problem. To analyze the areal functional organization of human occupance focused on Adelaide, South Australia. The study areais defined as the area comprising those places which have a common focus for certain goods and services in Adelaide, the nodal core of one of six regions in Australia. Each core has its own distinctive pattern of interconnections, which generally do not overlap with those focused upon another nodal core.

Method of Study. Two years of field work in the "out back" areas of southern and central Australia, including tabulation of every commercial or other nodal establishment in every settlement with 1,000,000 square miles, including analysis of the interconnections among the establishments and settlements.

Major Findings. "Current and future problems arising out of individual and group associations will continue to alter the functional organization of the Adelaide region. Changes in functional organization will undoubtedly occur in new development area. . .New technologies will continue to make it possible to take on new or modified activities which will bring about other changes in the functional

organization of the region. Improvements and extensions of transport and other forms of connections will profoundly affect the organization of occupance patterns particularly in the northern part of the Adelaide region. The addition and amalgamation of new population elements will modify patterns in some areas." (HMM)

39. MANUFACTURING STRUCTURE AND PATTERN OF WAUKEGAN-NORTH CHICAGO
G. Munir Ahmed
To be published as: Ahmed, G. Munir, Manufacturing Structure and Pattern of Waukegan-North Chicago. University of Chicago Department of Geography Research Paper No. ___, 1956, 117 pp. + maps. $3.00.
No previous Digest report.

Research Problem. To study Waukegan-North Chicago, Illinois, with particular regard to (1) locational attributes, (2) factors affecting industrial location and development, (3) major aspects of the existing industrial structure and the importance of industrialization in the economic base of the communities, (4) the demographic structure of the communities and the main characteristics of the labor force, (5) the pattern of the area's transportation system, (6) the regional and national relationships of the industries, and (7) the implications of the foregoing in terms of the communities' plans for industrial development.

Method of Study. Field work, including mapping of land uses, interviews with industrial executives, public officials and others, and letter questionnaires to the local industrial establishments.

Major Findings. "Waukegan-North Chicago is an already established industrial area. It combines the advantages of a good local setting and a significant regional orientation. The location of an organized industrial district proximate to Waukegan-North Chicago will further qualify it as an area highly desirable for industrial location and at the same time it will considerably add to the industrial potentialities of both Waukegan and North Chicago".

40. DELIMITATION OF HIGH QUALITY RESIDENTIAL LAND USE IN WORCESTER, MASS.
Telesforo W. Luna (under direction of Raymond E. Murphy)
Doctor's dissertation, Graduate School of Geography, Clark University
No previous Digest report.

Research Problem. Development of methods for delimiting high-quality housing from available statistics and from field work.

Method of Study. Using block housing data an attempt will be made to set up limits of high-quality housing, possibly by use of standard deviation technique. Results of delimitation by this method will be checked in the field to see what observable factors may be used to refine the results from block housing data. An attempt will be made, too, to use city valuation data as a further check.

Major Findings. Project has just been begun. (REM)

41. EVOLUTION OF THE CENTRAL BUSINESS DISTRICT OF WORCESTER, MASS.
Grady O. Tucker, Jr. (under direction of Raymond E. Murphy)
Doctor's dissertation, Graduate School of Geography, Clark University.
Research completed; microfilmed by June, 1957.
No previous Digest report.

Research Problem. The study is an attempt to develop techniques for tracing the evolution of the spatial arrangements of various types of land use, particularly retail trade, around the most central location in the city.

Previous Relevant Research. Richard U. Ratcliff's study of the Madison, Wisconsin, Central Business Area; Raymond E. Murphy and J. E. Vance's "Delimiting the CBD".

Method of Study. To trace the beginning and development of the business center. From 1860 to 1953, the locations of various types of functions are traced through construction of successive land use maps based on city directories and other sources. Trends in street frontage occupied by various types of business and non-business uses are measured from 1860 to 1953. The more detailed portion of the study is restricted to the area delimited by Murphy and Vance as constituting the present-day CBD. Trends in average distance of selected functions from a chosen central point are also measured over this period.

Major Findings. Central point was chosen by early planners; developed on the basis of social functions; center of business activity has moved very little; subtle changes in functions of business units tend to evade classification (system adapted from Standard Industrial Classification); business units appear to adapt themselves rather than change location. (REM)

42. DEVELOPMENT OF STANDARDS FOR SITE ANALYSIS
Raymond E. Murphy
One phase of the study reported on briefly in article in American City, October, 1956. As research progresses the results will be published in more detail in magazine articles.
Project is private research but is an outgrowth of an earlier study of the Springfield, Massachusetts, area carried on under contract with Future Springfield, Inc.
Previous Digest report: Item No. 7, Volume 3, No. 1, entitled "Development of Standards for Delimiting Potential Industrial Sites".

Research Problem. The project was described in earlier report as an attempt to set up the best possible standards for delimiting potential industrial sites. For details refer to this earlier report. The same questions are being investigated further, particularly through application to new situations. At the same time the inquiry has been broadened to include standards for selecting the best sites for business development and standards for selecting areas for subdivision development. The research does not involve exact planning and design. Instead, it meets the more general problem of planning the future of the "empty lands"

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in an area, empty lands being defined as those that now lack urban-type uses but are sufficiently well drained, not too steeply sloping, etc., to be of value for such uses. In broad terms it amounts to analysis of the space resource of communities.

Previous Relevant Research. See previous digest report referred to above.

Method of Study. An attempt through interviews and field work to set up the most effective limits and to refine these limits. (REM)

43. STUDY OF THE EXPANSION TRENDS IN THE AUTOMOBILE INDUSTRY
Bettyann Cronander
Research completed, monograph form (mimeographed)
Research conducted under the supervision of Paul M. Reid, Executive Director, Detroit Metropolitan Area Regional Planning Commission, Detroit, Michigan.
No previous Digest report.

Research Problem. To determine the future significance of the automobile industry to the economy of the Detroit Region.

Method of Study. This study is primarily an analysis of the structure of the automobile industry with reference to (1) its economic orientation to industrial suppliers, raw materials, transportation, regional population centers as market focal points and plant requirements and (2) the history of plant location. The objective was to determine any existing trends in plant location and employment. Ford Motor Company, Chrysler Corporation and General Motors Corporation were used almost exclusively as the basis of analyzation because of their significance in passenger car production and relatively easy access for personal contact. Data are gathered from U. S. Census publications, Federal reports, periodicals, and textbooks, supplemented by personal interviews with various representatives of the automotive corporations mentioned above. The study is divided into chronological periods of development: 1910-1929, 1929-1939, World War II and 1947-1956.

Major Findings. The post World War II period of expansion is most significant in determining future trends of automotive development in the Detroit Region. There have been two major patterns of new plant location since 1947. The assembly plants which are market oriented have been constructed in or near cities which either have had large population increases or are in a position to be a central distribution point for a larger regional market area. Heavier manufacturing operations which are more oriented to subsidiary supply industries have remained concentrated within the northeastern manufacturing belt. Most of the new manufacturing plants have been built in Michigan, Ohio and Indiana. Nationwide increases in productive capacity and employment in the automotive industry have led to the relative decline of productive capacity and employment within the Detroit Region. Many of the new plants in the Detroit Region have been replacements for obsolete facilities while the newly constructed plants in Ohio and Indiana as well as other states within the manufacturing belt, represent new productive capacity and

employment. Since 1929, the automotive industry has been declining in relative importance in the Detroit Region's economic base. On the basis of this study, it is expected that the Region's economic base will become more diversified in the coming decades.

44. THE ROLE OF THE PLANNING DIRECTOR IN A COUNCIL-MANAGER FORM OF CITY GOVERNMENT: An Analysis Based on Case Studies of "Plan E" in Massachusetts
Peter H. Nash (under the direction of Arthur A. Maass and Reginald R. Isaacs)
Harvard University; Graduate School of Arts and Sciences, Committee on the Ph.D. in City and Regional Planning

Research Problem. An analysis of the office of the Planning Director in a Council-Manager form of municipal government based on detailed standards and criteria. An Evaluation of the duties and an examination of the planner's relationship to the city manager, the various municipal departments, and the planning board. An account of the evolution of planning - management relationships in municipal government, in relation to history, scope, method, influences, and parallel growth.

Method of Study. Research involves the "case method" of approach. The seven "Plan E" cities in Massachusetts are used as cases: Cambridge, Quincy, Medford, Worcester, Lowell, Revere, and Gloucester. The cases are evaluated on the basis of general working biases and specific criteria, involving both formal and informal standards. The major philosophical and methodological problems are spelled out and analyzed. Procedural changes are recommended and criteria for sound relationships are itemized.

45. THE GROWTH OF SUBURBAN AREAS WITH PARTICULAR REFERENCE TO THE LOCATION AND FORM OF SHOPPING CENTERS
Josephine P. Reynolds (under the direction of Reginald R. Isaacs)
Candidate of Doctor of Philosophy in City and Regional Planning, Radcliffe College

Scope of the Study. The subject is to be a study of metropolitan areas in America with a view to forecasting trends of development in the suburban areas of England. The areas proposed to be surveyed in outline will include Boston, Chicago, Detroit, Toronto, Washington and New York. The study of the shopping centers in these areas is to include regional and suburban centers.

46. THE PERCEPTUAL FORM OF THE CITY
Gyorgy Kepes and Kevin Lynch
Research in final year of a three-year period. Report expected in summer of 1957.
Conducted under the Urban and Regional Studies Section, Department of City Planning, M.I.T.
Previous Digest report: Item No. 18, Volume 2

Research Problem. Study is concerned with the impact of the urban perceptual environment on the citizen. Work is now centering on means by which large city areas are conceptually organized, and also on the way in which the cityscape communicates to the observer.

Method of Study. Both interview and design research techniques are being employed. (KL)

47. LIVABILITY IN THE CITY: ATTITUDES AND URBAN DEVELOPMENT
F. Stuart Chapin, Jr., and Robert L. Wilson
Research in progress, with exploratory field work under way.
Study one of a series sponsored by the Urban Studies Committee, Institute for Research in Social Science, University of North Carolina.
Previous Digest report: Item No. 33, Volume 2.

Research Problem. The immediate goal of this study is to develop a workable tool, economical to administer, which urban planning agencies can use (1) in determining public preferences for various physical facilities under varying implications for the individual's tax bill, and (2) in probing public notions of the amenities of city living, particularly attitudes and expectations concerning the qualities that the physical surroundings of metropolitan areas should possess as urban growth and development proceed in the future. A long-range goal, which is beyond the scope of the present research, is to try to get sufficient experience in the use of the tool under a wide range of circumstances in order to be able to reach generalizations which will have value as planning principles in any city.

Hypotheses. Formulation is in progress based on exploratory interviews conducted during the past summer.

Method of Study. An interview schedule is being developed in the course of exploratory interviewing work. As the schedule becomes further perfected through continuing experimentation, it will be pretested and applied in two pilot study cities. On the basis of experience gained in these surveys and in summarizing and interpreting results, a standard operating procedure for making such studies will be prepared.

Progress Report. Exploratory interviewing work has been done in communities in which advanced planning concepts have been applied as well as in those where little attention has been given to physical planning. Attention has also been given to "high-rise" central city situations as well as to low density suburban situations. Among communities visited so far in the exploratory interviewing phase of the research are Radburn, New Jersey, Fresh Meadows on Long Island, Levittown on Long Island, East Harlem on Manhattan, Greenbelt, Maryland, and Chapel Hill, North Carolina. (FSC)

48. ECONOMIC BASE THEORY AND URBAN DEVELOPMENT
Ralph W. Pfouts and Erle T. Curtis
Research to continue over next two years
Project of Urban Studies Committee, Institute for Research in Social Science, University of North Carolina

[illegible]

Previous Digest report: See description of Committee program, Item No. 15, Volume 2, and Item No. 34, Volume 1, see also Item No. 25, Volume 3.

Research Problem. The objectives of this research fall under three headings: (1) a comprehensive statement of base theory, (2) an examination and weighing of base theory as an economic theory, and (3) a series of empirical tests of base theory. The ultimate purpose of this research is to establish whether this particular system of analysis offers a wholly satisfactory means for explaining urban development. In fulfillment of the first objective, a concise restatement of the concept will be made from available writings on base theory, particularly as it seeks to explain urban growth and development. The second objective will involve the development of the logical implications of base theory so that these implications can be compared with general economic theory to determine whether base theory implies anything contrary to known facts or accepted beliefs in economics. The third objective, empirical testing of the base theory, will be largely a matter of devising and applying statistical tests of the thesis that expansion in basic industry and urban growth and development go hand in hand.

Previous Relevant Research. Work of Homer Hoyt, Richard B. Andrews, John W. Alexander, Hans Blumenfeld, Charles Tiebout, James Crozier and others.

Hypothesis. That population increase in the Standard Metropolitan Area of a city is accompanied by a change in the base-service ratio. That the economic base theory conforms with accepted views in economic theory.

Methods of Study. The first hypothesis stated above has been tested by correlating population change with changes in base-service ratios. Tests of significance and confidence limits were applied. The usual methods of economic analysis are applied to the second hypothesis.

Major Findings. The correlation tests do not support the first hypothesis. For some classes of cities the results are opposite those expected under the first hypothesis. In some cases the correlations are not statistically significant. Thus, for cities of the classes tested, the first hypothesis stated above is rejected. The second hypothesis is also rejected because too many variables considered important in economic analysis are omitted in the forumlation of the second hypothesis. An alternative income model is proposed. (RWP)

49. SUBURBAN GROWTH AND THE EXTENSION OF MUNICIPAL SERVICES
George H. Esser, Jr., David L. McCallum, and Ruth L. Mace
Continuing project of the Institute of Government of the University of North Carolina
Previous Digest report: Item No. 26, Volume 3.

Research Problem. An investigation of alternative solutions to the problems involved in the extension of municipal services to urbanized and urbanizing areas beyond the corporate limits of middle-sized cities

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and small communities characteristic of the State of North Carolina. The pilot study, undertaken at the request of the City of Greensboro (pop. approx. 100,000), has now been completed and published as the Greensboro Suburban Analysis. It is expected that findings in the Greensboro area will be supplemented by studies in a number of other cities in the state ranging in population from 10,000 to 90,000.

Detailed Component Studies. Thus far two detailed specialized studies have been undertaken and completed as part of this general research. The first is a study of the cost of governmental activities in single family residential areas of different densities. The second is a survey and critical analysis of studies relating the costs of providing municipal services to specific areas or categories of land use to the revenues to be derived from these areas or land use categories. These studies (which were briefly described in the previous Digest report) were submitted as Master's theses (1956) to the Department of City and Regional Planning of this University. They will be revised and published by the Institute of Government early in 1957 as part of a monograph series on problems of urban growth.

Major Findings. With the completion of the Greensboro research, it is possible to report on a number of findings in addition to those set forth in the previous Digest report. These may be briefly summarized as follows: (1) Level or quality of services. For most urban services the level at which the service is provided may and should vary according to the location of the property in the metropolitan area and the way it is developed. There are some services, however, that have an impact throughout the area such that the lack of any one of them would menace the future health and prosperity of the community. Such facilities as an efficient major highway network and water and sewer lines, and such services as metropolitan-wide planning and land use control (including the protection of vacant industrial land from unwise residential development) should be planned for and provided on an area-wide basis at a uniform standard. (2) Service costs. In estimating the costs of providing services as needed throughout the area, the Institute first identified two main service categories - first, "services to property" and second, "services to people". Services of a community-wide nature, such as recreation programs, public education, and cultural facilities are provided for people, and cannot be clearly identified with the demands of property. Similarly, other facilities such as major street systems in urban areas affect the development of the whole urban area and cannot be identified with the demands of particular kinds of property. Employing performance budgeting techniques, the Institute devised and applied a set of cost measurement units to estimate the capital and annual operating costs involved in providing those services essential to effective utilization of property in an urban community--the so-called "services to property". (3) The cost-revenue relationship. In the Greensboro metropolitan area (and probably also in other North Carolina cities where public education is a state and county, not a municipal, responsibility) it would appear that revenues from the municipal property tax, supplemented by special assessments at the time permanent improvements are installed, generally pay for the costs of services necessary to land. This holds true for

[illegible]

[illegible] 103,000 [illegible] complete [illegible] [illegible] [illegible]

soundly developed residential areas as well as industrial and commercial property. The additional valuations for industrial and commercial property being important principally to meet the higher cost of services to such types of property. Other communities in other states, where public education is a municipal responsibility, have generally concluded that residential areas are not paying their way for municipal services. In most cases this is the result of charging or allocating the high costs of public education to residential use. (4) Governmental organization for providing various services at varying levels in metropolitan areas. There are various possible adaptations in governmental structure to meet these conditions. Specific recommendations devised for Greensboro on the basis of the existing situation are as follows: that city boundary move out with the service boundary (i.e. annexation would precede the extension of water and sewer lines and all other services); that County septic tank regulations be revised upward to assure that future sanitation trouble spots do not develop in areas unserved by city utilities; that county-wide planning be introduced, carrying with it protective zoning and subdivision controls and special measures to safeguard farm lands; that city adopt a "municipal service policy" under which it would plan and budget the extension of services in advance and make public its decisions.

50. EXPENDITURES AND REGULATORY REQUIREMENTS FOR PUBLICLY-PROVIDED COMMUNITY FACILITIES IN NEW AND EXISTING RESIDENTIAL AREAS *
John W. Dyckman
Scheduled to begin early in 1957, to be completed within the year.
Under the auspices of the Institute for Urban Studies, sponsored by ACTION.

Research Problem. The contemplated study is one of a series of studies into impediment in the housing market sponsored by ACTION. It is one of a series of proposed investigations into community factors facilitating or impeding the provision of standard dwelling environment. This research would attempt to review and summarize the position of community facilities in the growth and maintenance of sound residential areas, and in the continuing growth of the national economy. It will explore the scale of community facilities outlay required for various types of residential growth and renewal.

Method of Study. Methodologically, the study will concentrate on an effort to collate and integrate existing statistical findings, and to recombine data in a manner which will throw some light on this little-studied problem. Since there have been few follow-ups to the Wheaton and Schussheim report on unit costs in New England communities, it may be necessary to supplement existing data sources with such samples as can be gleaned from about the country.

Scope of the Study. It will be the aim of the project to examine public policy problems raised by conservation, redevelopment, and new growth in American cities in the light of implications for alternative investment programs which may be raised by the various development strategies.

51. A HISTORY OF TOWN AND COUNTRY DEVELOPMENT
Dr. E. A. Gutkind, Research Professor in Urban Studies
This project began on September 1, 1956. It is hoped that the first volume will appear in a year and one-half with other volumes spread over a three-year period.
Sponsored by the Institute for Urban Studies, University of Pennsylvania, with the support of the Rockefeller Foundation.
No previous Digest report.

Description. The purpose of this project is to provide an English language history of man's efforts to build his own environment. The project will deal with the historic cities of each of the major civilizations in each of the continents of the world and will treat of the regional environment for urban development in each case. The work will be organized by continents or major regions of the world. The volumes will be published serially as work on each is completed. The project will not attempt original research but will draw upon existing sources in the history of architecture and city planning and in geology, anthropology, archaology and the like. A number of research fellowships will be available for work on this project during the next three years. (WLCW)

52. CONTEMPORARY DESIGN OF COMMUNITY OPEN SPACES
Assistant Professor Ian McHarg
To begin in the fall of 1956 and to be completed by the fall of 1958.
Sponsored by the Institute for Urban Studies, University of Pennsylvania, under a grant from the Rockefeller Foundation.
No previous Digest report.

Description. This project will assemble from all available published sources the most distinguished examples of landscape design for community open spaces in the following fields: parks and playgrounds; open space in housing, shopping and civic centers, highways, institutional groupings. To the extent that the material assembled justifies publication, a volume of outstanding examples with analysis of major trends will be published on each subject. The work will treat of the period 1920-1950. It will be conducted by a canvass of all periodical publications containing examples of the design of open spaces during the period surveyed. (WLCW)

53. METHODS OF PROJECTING LONG-RANGE INDUSTRIAL DEVELOPMENT TRENDS
Mr. Britton Harris
Work begun July 1, 1956, to be completed January 1, 1957. Publication in the revised form is expected late in 1957.
Sponsored by the Institute for Urban Studies, University of Pennsylvania, under a grant from Resources for the Future and with financial assistance of the Delaware Basin Advisory Committee.
No previous Digest report.

Research Problem. The United States Army Corps; the states of Pennsylvania, Delaware and New York; and the cities of Philadelphia and New York are engaged in the development of a long-range plan for

[illegible] environment. The [illegible]

[illegible] will

[illegible] regions of the world. The volume will be published regularly as work on each is completed. The project will not attempt original research but will draw upon existing sources in the history of architecture and city planning and in geology, anthropology, [illegible] for the [illegible]. A number of research fellowships will be available [illegible] the next three years. (WCW)

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of construction, [illegible]
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completed [illegible] (CM)

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[illegible] to be completed [illegible] 1969 [illegible]
[illegible] revised [illegible]
[illegible] The Institute [illegible]
[illegible] grant from [illegible] financial
[illegible] of the [illegible] committees.
[illegible] previous project [illegible]

[illegible] Philadelphia [illegible] the state
[illegible] and the cities of Philadelphia
and that work [illegible] in development of a long-range [illegible]

the Delaware River Basin. The initial problem as agreed by these agencies, is to develop methods for projecting industrial growth, industrial composition and water use requirements for periods of as long as 100 years. The research problem is, therefore, to select the most useful research methods and to design a research program.

Method of Study. Previous studies in this field have been canvassed and considered at conferences including representatives of a number of universities working in related fields. The work is being conducted in cooperation with the Harvard Projects for the study of basin development and the study of the New York economic base study. Major areas of inquiry concerned the usefulness of the following types of research and projection: (a) National economic projects by industry; (b) independent demographic projects; (c) projects of technological trends in industry; (d) analysis of regional shares in the national economy derived from transportation functions, trend analysis, input cost analysis, industry studies and input-output studies; (e) costs and functions of urban areas as revealed through models of alternative patterns of work; (f) studies of the economics and technology of water consumption. Upon completion of the design project, the Institute for Urban Studies will undertake the preparation of a volume on methods for economic projection for wider use. This volume will draw upon the methods developed in the Philadelphia Metropolitan Area and Delaware Basin Studies recorded above and previously in this Digest. (WLCW)

54. PHYSICAL REQUIREMENTS OF HOUSING AND RENEWAL POLICIES
John W. Dyckman
Research to be undertaken and completed during the academic year 1956-57.
Sponsored by the Institute for Urban Studies, University of Pennsylvania, with the assistance of a grant from the American Council to Improve our Neighborhoods.
No previous Digest report.

Description. This project will attempt to develop preliminary estimates of the public investment requirements for community facilities resulting from alternative national and local policies of housing and urban renewal.

Method of Study. The development of economic models for urban areas based upon alternative patterns of urban development and community facility requirements. (WLCW)

## SUBJECT INDEX, VOLUME 3, 1956

(Reference is to item number of abstract)

# INDEX TO PERSONS, VOLUME 3, 1956

(Reference is to item number of abstract)

# RESEARCH DIGEST

Sponsored by the
Urban Planning Research Group



Vol. 4, No. 1 May 1957

Prepared and distributed during 1957 by the
Department of City Planning and Landscape Architecture
University of Illinois
Urbana, Illinois

Contents

## EDITORIAL NOTES

Vol. 4, No. 1 - May 1957

Digest Aims. (reprinted from Volume 2, No. 1, April 1955). If it is possible to identify the content emphasis of the RESEARCH DIGEST, its founders, in all likelihood, would agree that its primary focus is upon urban-oriented research, from whatever discipline or field which advances understanding of the growth and development of urban areas and the theory and practice of urban planning. The Digest is intended to be a researcher's medium of exchange and communication in which current research -- pending, in progress, or recently completed -- is summarized. It reports primarily on the work of faculty researchers of research staffs either university or agency, although it carries a few abstracts of student dissertations and theses where the work is directly related to on-going staff research activities of the institution or is considered by the reporting institution to have significant reference value to others engaged in research.

Circulation. Volume 3 contained contributions from fifty-six researchers connected with sixteen university or agency research groups. The mailing list now includes approximately one hundred and fifty persons.

A number of contributors have not reported recently on progress of work previously noted as being initiated. A special follow-up request will go to them for material to be included in the fall issue.

Credit Lines. Contributions to this issue which appear in the Table of Contents are gratefully acknowledged. It should be noted that correspondents from Georgia Institute of Technology, Harvard University, and Resources for the Future, Inc. were heard from, although no new projects or progress reports are being included at this time.

Major responsibility for this issue has been shared by Professor William Goodman and Mrs. Elaine Russell, Secretary of the Department of City Planning and Landscape Architecture.

Louis B. Wetmore, Editor
Urbana, Illinois

Major grants have been announced by the Ford Foundation to the University of North Carolina and University of Pennsylvania for urbanization studies.

1. PLANNING FOR COMMUNITY DESIGN

Henry Fagin and Robert C. Weinberg (Co-Chairmen, Joint American Institute of Architects-American Institute of Planners Committee on Design Regulation).

Research findings, reproduced March 1957 in preliminary mimeographed draft for limited circulation by Regional Plan Association, 205 East 42nd Street, New York 17, N.Y., will be published next year as a booklet.

Conducted by a Joint Committee of architects and planners in the New York Metropolitan Region with the cooperation of the Regional Plan Association. No previous Digest report.

Research Problem. To determine how the public can best exert a beneficial influence over the appearance of communities as they evolve.

Hypothesis. That the widespread emphasis on preservation and on regulation in past attempts to influence appearance should be replaced by an emphasis on positive creative effort.

Method of Study. Existing American and European regulatory devices were collected, analyzed and discussed. Largely through group deliberation among a dozen Joint Committee members a new philosophy of approach and a method of attack was evolved.

Major Findings. Separate parts of the report present: the Joint Committee's reaction to specific existing legislation; its program as to how to plan for community design; and extensive excerpts from existing ordinances and court decisions dealing with community esthetics.

The central finding is the importance of a Municipal Design Plan and Program as an integral part of the local Master Plan. (HF)

2. LOCAL ORGANIZATION FOR URBAN RENEWAL

George Duggar, assisted in the conduct of comparative case studies by Robert T. Daland, Louis P. Dolbeare, John A. Parker, Deil S. Wright; and by others for other types of studies.

Research began in July, 1956. Project is scheduled for completion of final draft by end of 1957.

Conducted at the University of California, Bureau of Public Administration, with a demonstration grant from the Urban Renewal Administration of the Housing and Home Finance Agency.

No previous Digest report.

Research Problem. Distinguish and describe characteristics of the local organization for urban renewal in different localities and at different stages in the development of federally aided local programs.

Previous Relevant Research. Because urban renewal is a synthesis of programs, some of which are long established, much has been written about some of the parts but little about the whole. On the broad subject of urban renewal, existing writers merely recite elementary legal aspects of local organization, or peer prophetically into the future. This is the first comprehensive and fairly intensive survey conducted since the National Housing Act of 1954.

Hypothesis. The report will reflect the assumption that the major participants in local urban renewal programs are themselves important in making local urban renewal policy. The presently orthodox view concerning the essentiality of leadership by the local chief executive is re-examined, with emphasis on the relation of other individuals and groups whose cooperation is essential to urban renewal, and on the steps by which the cooperation of all the necessary groups is obtained.

Method of Study:

(1) Reconnaissance survey of forty cities and study of law and bibliography.
(2) Analysis and model building.
(3) Intensive case study of ten cities, based on interviews with individuals in panels, and study of documents.
(4) Questionnaire survey addressed to individual participants in urban renewal.

Major Findings. (The study is now at Stage (2) in the method as outlined above). (GD)

3. THE SUBURBANIZATION OF ADMINISTRATIVE OFFICES IN THE SAN FRANCISCO BAY AREA
Donald L. Foley
Research Report 10, Real Estate Research Program, Bureau of Business and Economic Research, University of California. Published March 1957. Available from that agency, price $1.50 per copy.
Previous Digest reports: Item No. 14, Vol. 2; Item No. 32, Vol. 1.

Research Problem and Method of Study. See previous digest reports.

Major Findings. The central portions of the San Francisco Bay Area have retained a striking concentration of the main administrative offices of business firms. Of the top offices of the 1,000 largest firms or nongovernmental organizations in the Bay Area (those employing 100 or more persons), nearly two-thirds are within a central area comprising San Francisco, central and northwestern Oakland, and Berkeley and Emeryville.

Nevertheless, there has been a steady drop over the twenty-six year study period, 1928-1954, in the proportion of Bay Area top offices located in downtown San Francisco. Most of the office moves from San Francisco to suburban areas represented situations where the office was located with a suburban plant, warehouse, transportation terminal or other non-office facility. The number of major office moves from San Francisco resulting in completely detached offices in suburban locations has been extremely limited.

The reasons given for locating offices in suburban or in central areas varied widely according to the type of firm and the outlook of the dominant executives. While rational quantifiable economic factors were of course cited, it was also clear that qualitative differences as between suburban and central locations were given considerable weight. (DLF)

4. A STUDY OF THE PRACTICE AND THEORY OF AIRPORT FINANCING BASED ON A SURVEY OF CALIFORNIA AIRPORTS.
Richard Zettel and Robert Horonjeff
Completed and published as Research Report #24 of the Institute of Transportation and Traffic Engineering, University of California, Berkeley, California, December 1956. No previous Digest report.

Research Problem. The phenomenal growth of air transport in the post-war years, and the consequent needs for expansion of ground facilities have posed continual problems of financing. Fiscal policy with respect to airports has been changing, but some trends are becoming evident. This study summarizes the results of a financial study of California airports, presents some analytic considerations of airport financing, and examines fiscal policy.

Method of Study. Since no central repository of airport data is maintained, basic information was collected, through visits to airports, by interviews with their officials, and by examination of records. Fiscal data were assembled for 32 California airports, ranging from the very largest to some of the smallest.

Major Findings and Conclusions. Airports in California derive revenues from a wide variety of sources, including rentals and concessions at terminals, sales of fuel and utilities, and fees and charges for use of storage and landing areas. In the past, however, few California airports have met the expenses of airport operation and maintenance (even exclusive of depreciation and interest) from revenues derived from airport operations. But there is a definite trend toward self-sufficiency. In the period, 1946-50, only 33 percent of the airports met direct expenses; for the fiscal years 1954 and 1955 combined, one-half the airports met expenses. It now appears that some of the larger airports are able to meet all costs, including depreciation and interest.

The alternative to financing airports through traditional tax support is to make full use of commercial principles in deriving payments from airport users. Such a commercial approach appears to have among its advantages:

a. provision of an effective test of ability and willingness to pay and, hence, of economic justification of airport expenditures;
b. promotion of equity in cost distribution along with relief of the tax structure for things that only taxes can finance; and
c. support of basic transportation policy through removal of subsidy elements that may distort traffic allocation and investment.

Full application of the commercial approach would suggest that:

a. the owner recover all local capital over time (even on non-depreciable assets);
b. investments of Federal and State aids be excluded from the base for fixing local user charges;

[illegible]

c. charges for concessions and other ancillary activities be based on full rental values;
d. profits in the form of "hidden" user charges be credited against the airport costs assigned to those who pay such charges;
e. other profits generally be credited against airport costs rather than go to the airport owner, but may be used for minor additions to plant or as offsets to assignments of cost to the military which may not be recoverable;
f. present and prospective utilization of the airport in relation to its capacity be considered in fixing user charges to the end that such charges be reasonably uniform but still meet costs over time. (WNK)

5. A STUDY OF EXPRESS BUS OPERATION ON FREEWAYS
Wolfgang S. Homburger
Completed and published as Research Report #23 of the Institute of Transportation and Traffic Engineering, University of California, Berkeley, California, December 1956. No previous Digest report.

Research Problem. This study investigates the problems encountered in operating express bus service on freeways in view of the possible use of this type service on larger scales in urban areas in the future.

Method of Study. Three newly-established express routes of the Municipal Railway of San Francisco were studied. For each route data were gathered on physical characteristics, patronage, and financial statistics for the first 4-1/2 months of operation. Comparisons were made to corresponding data for service available in the same period of the previous year. These data were obtained from the records of the transit company. A postcard survey was conducted among passengers of the routes after 4 months of operation to determine the previous mode of transportation of freeway express bus patrons, and to obtain their reaction to the new service.

Major Findings.

1. The majority of the passengers on the new routes have been diverted from other transit routes. Only one route attracted a substantial proportion of patrons (24%) from private automobiles and car pools.

2. The number of passengers attracted to the new service from automobiles has had no noticeable effect on the total traffic volumes into the central part of the city.

3. Since the new services cater almost exclusively to long-distance passengers, a deficit is being incurred in their operation at present fare rates. Higher operating speeds tend to reduce operating costs per mile, but two of the three routes are longer than the previous best transit route. (However, there are substantial time savings.) Long-distance passengers on all routes do not pay a fare sufficient to cover the cost of their ride.

4. Public reaction to the new service was generally very favorable. Time savings achieved by the new service were mentioned by many respondents to the survey.

Conclusions. The study indicates that buses operating on freeways are a feasible means of transporting passengers from the outer sections of a city to its central district. It seems especially desirable to operate existing long routes over available freeways, unless extra route mileage is required. New services will attract some riders from private means of transportation, especially if the routes are well advertised and publicized. However, the establishment of such service will have to be accompanied by a determination of public policy on the methods of financing. (WNK)

6. THEORY OF LONG-DISTANCE AIRLINE TRAVEL
D. M. Belmont
First results published as "A Pattern of Interstation Airline Travel", Journal of the Air Transport Division of the A.S.C.E. vol. 82, No. AT2, May, 1956. Further results to be available this year. Work is conducted at the Institute of Transportation and Traffic Engineering, University of California, Berkeley, California.
No previous Digest report.

Research Problem. To develop a theory adequate to explain the distribution of air travel among domestic U. S. stations, particularly at distances over 800 miles.

Method of Study. To inspect the Origin-Destination data of the C.A.B. to find significant patterns, and to subsume these patterns to a theoretical model.

Major Findings and Conclusions. Work so far completed indicates that long-distance air travel is independent of distance. Some quantitative effects are derived for the change in traffic for given changes in level of air service. (WNK)

7. RELATIONSHIPS OF MEASURES OF INTRA-URBAN ACCESSIBILITY TO INTENSITY AND TYPE OF LAND USE.
John Hamburg and the staff of Division VII of the Chicago Area Transportation Study.
Current research utilizing the land use floor space inventory of Metropolitan Chicago and alternate measures of intra-urban accessibility.
Conducted by the Chicago Area Transportation Study under the joint sponsorship of the U.S. Bureau of Public Roads, the State of Illinois, Cook County, and the City of Chicago.
Previous Digest Report: Item No. 6, Vol. 3.

Research Problem. Determine and measure the relationship, if any, of the frequency, amount, and intensity of several land use types by

zones, to measures of the zone's relative accessibility to all other zones, weighted by the population, retailing, industrial, etc.

Hypotheses.

1. The intensity of use (as measured by floor area - land area ratios) is expected to be directly related to relative accessibility, i.e. the more accessible a site to all parts of the urban structure, the more intensive the use of that site.

2. The kind and proportions of various types of land use occurring at any point in space is a function of the accessibility of that zone in relation to all other zones in the urban area. In the most general sense, this is illustrated by commercial activities in the center and a preponderance of residential use in the peripheral area.

Method of Study. The inventory of land use and floor space was obtained in a survey conducted by the Chicago Area Transportation Study using electric utility meter cards in conjunction with Sanborn Maps, aerial photography, and secondary sources of information on land use. The measures of accessibility will be obtained using an electronic computer to measure accessibility in terms of aggregate time and distance measures of ea ch analysis zone to all others. These measurements of accessibility and land use will be correlated to test the hypotheses.

Completion Date. The findings should be available by December, 1957.

8. EVOLUTION OF THE CENTRAL BUSINESS DISTRICT OF WORCESTER, MASS.
Grady O. Tucker, Jr. (under direction of Raymond E. Murphy).
Doctor's dissertation, Graduate School of Geography, Clark University.
Project completed; available through University Microfilms, Ann Arbor, Mich.
Previous Digest report: Item No. 40, Vol. 3, No. 2.

Research Problem. An attempt to develop techniques for tracing the evolution of the spatial arrangements of various types of land use, particularly retail trade, around the most central location in the city.

Major Findings. Central point was chosen originally by early planners; developed on the basis of social functions; center of business activity has moved very little; subtle changes in functions of business units tend to evade classification (system adapted from Standard Industrial Classification); business units appear to adapt themselves rather than to change location; no real point of centrality but rather a persistent area or section that has maintained this property.

9. THE ECONOMIC AND SOCIAL EFFECTS OF THE CONNECTICUT TURNPIKE IN EASTERN CONNECTICUT.
Main investigators: W. C. McKain, R. G. Burnight, A. Chevan
Research began in April, 1956. First publication will be released in 1958 and later reports will be made annually.
Research is being conducted by the Department of Rural Sociology at the University of Connecticut in cooperation with the State of Connecticut Highway Department.

Research Problem. To determine the impact of the Connecticut Turnpike upon population change, retail trade, manufacturing, recreation industry, land values and governmental services.

Method of Study. Field interviews and various governmental records are the sources of information. A series of bench marks are being established before the Turnpike is opened. Annual changes will be recorded.

10. HOME BUYING AND FINANCING TRENDS IN SELECTED URBAN AREAS OF NEW YORK STATE
Glenn H. Beyer, Project Director; Joseph F. Mangiamele, Research Assistant, Cornell University, Department of Housing and Design and the Housing Research Center.

Research Problem. This project was undertaken because of the need for a series of data on home buyer and mortgage characteristics during this period when the volume of home mortgages is the largest in the history of the nation.

Method of Study. Data are provided by different types of lending institutions on all loans closed on single family, owner-occupied homes. The data are taken from mortgage applications and are recorded on forms provided by the Housing Research Center at Cornell University. Some of the types of data being collected include: size of house, selling price, amount of down payment, per cent of down payment to selling price, original amount of mortgage, period of loan, size of family, age of head of family, former residence, borrower's income, ratio of borrower's income to selling price, ratio of borrower's income to amount of mortgage, and per cent of monthly payments to income.

Major Findings. While quarterly reports are made to cooperating lending institutions in return for their participation, public reports will not be issued until the end of each calendar year. (This is expected to be a permanent study. It began in August 1956.) (GHB)

11. DEVELOPMENT OF A MODEL PROCEDURE FOR THE ADMINISTRATION OF ZONING REGULATIONS
Robert M. Leary (under the direction of John W. Reps).
Master's Thesis , June 1957.
Cornell University, Department of City and Regional Planning

Research Problem. To identify the problems in the administration of local zoning regulations, and to suggest a model procedure. (This study is financed under a fellowship from the J. C. Nichols Foundation of the Urban Land Institute.) (JWR)

12. GRAPHIC AND VERBAL RECORD OF HIGHWAY ENVIRONMENT
Class in City Planning Research, directed by Professor Philip H. Lewis and Visiting Professor Patrick B. Horsbrugh, Department of City Planning and Landscape Architecture, University of Illinois.

Research Problem. To record graphically the many sensory stimuli that are apparent within the perceptual range of Illinois State Highway 150, and to identify or create a vocabulary which would facilitate easy description of these stimuli.

Hypothesis. Highway and street design goes far beyond the precision of engineering requirements. There is an obvious need for systematic pproaches to analyze existing "highway environments". Approaches must be developed so that we can identify and describe the highway environment for comparative design studies.

Method of Study. Route chosen includes open landscape, industrial areas, residential areas, business districts and institutional establishments. The "strip of cognizance" was represented by what one could perceive on either side of the highway and recorded systematically. (PHL)

13. PATTERNS OF EMPLOYEE RESIDENCE IN RELATION TO PLACE OF WORK IN DECATUR, ILLINOIS
Edward L. Hopkins (under direction of Professor William I. Goodman). Master's thesis, June 1957; Dept. of City Planning and Landscape Architecture, University of Illinois.
Research Problem. To define and analyze the employee residential patterns of several selected industrial work places in Decatur, Illinois. The industries under study have been selected on the basis of significant variants in location of plant and duration of such location. Factors of residential patterns such as location, spatial distribution, housing type, mode of transportation thus were analyzed in relation to the locational characteristics of the industrial work place involved.

Method of Study. Review of material compiled by the Illinois Division of Highways through questionnaires to employees in Decatur. (WIG)

14. ECONOMIC STUDY OF IMPACT OF MASSACHUSETTS HIGHWAY ROUTE 128 ON ADJACENT LAND USE
Conducted by Massachusetts Institute of Technology, A. J. Bone, Supervisor. Sponsored by Massachusetts Department of Public Works and U.S. Bureau of Public Roads.
Work is in early stages. Terminal date August 1958.

Research Problem. The purpose is to survey and evaluate the industrial and residential developments which have taken place along newly constructed sections of Route 128, to investigate extent to which the highway has been responsible for these developments, and to determine the effect of these developments on highway traffic patterns.

Method of Study. Changes in land use, property assessments and market values are being investigated. Reasons for choice of plant location, former location, travel habits of employees and traffic patterns on and near Route 128 are also being studied.

Major Findings. No major findings are available. Pilot studies are in progress.

15. EMERGING PATTERNS OF METROPOLITANISM IN THE SOUTH
An interdisciplinary research program in urban studies, sponsored by the Urban Studies Committee, Institute for Research in Social Science, University of North Carolina; financed by a Ford Foundation grant, announced April 8, 1957, extending for a period of five years.
Previous Digest reports: Item No. 48, Vol. 3; Item No. 47, Vol. 3; Item No. 33, Vol. 2; Item No. 15, Volume 2; Item No. 34, Vol. 1.

The Urban Studies Program has three major foci: one devoted to urban research and graduate training in research, a second concerned with developing regional cooperative arrangements in furthering urban research, and a third directed toward putting research to work through short courses for civic leaders and in-service training for local officials of southern cities.

Research Problem. The purpose of the research program is to study the crucial growth and development problems facing the urban centers of the South. Research will center around five major groups of studies: (1) an evaluation of urbanization trends in the South and how southern cities are likely to share in national trends of urban growth; (2) studies of economic forces and industrial development trends underlying these urbanization trends; (3) studies of public policies and the way that they affect urban growth; (4) studies of city and regional planning approaches for minimizing haphazard and uneconomic growth and development; and (5) studies of community organization and civic leadership in urban development.

The research team includes: Robert E. Agger and Frederic N. Cleaveland in political science and public administration; F. Stuart Chapin, Jr., John A. Parker, Shirley F. Weiss, and Robert L. Wilson in city and regional planning; Ralph W. Pfouts and William N. Parker in economics; E. William Noland and John Gulick in sociology and anthropology; John D. Kelton in psychology; Floyd Hunter in social work; and George H. Esser, Jr., in local government administration and law. (FSC)

16. LAND USE INVENTORY
H. Loomer, A. Guttenberg (Philadelphia City Planning Commission).
Program in initial stages. To be completed early in 1958. Report will be published as part of the Philadelphia Comprensive Plan.
No previous Digest report.

Research Problem. To assemble data available on a parcel basis on assessment, building type and floor space, land area, activity (SIC classification) and employment, and to organize them in such a

way that they will be useful for analyzing a wide range of problems concerning land use requirements, city structure, transportation, land economics, zoning and others. The data must be organized on the most flexible possible basis. A method must be devised for keeping it up to date as much as possible.

Previous Relevant Research. Chicago Area Transportation Study, Land Use Inventory.

Method of Study. Secondary data will be utilized for the most part. Emphasis is being placed on combining such data which has already been collected by other agencies. A complete field survey is not envisaged.

In order to attain a maximum of flexibility, an attempt is being made to design a set of IBM cards which will contain a minimum of relatively fixed information on land use for each parcel. A street index set of cards is being developed by which current information which is gathered by other operating agencies can be collated periodically with the land use set. Such current information includes employment, assessment, and demolition or new construction. Summaries by block front, and block will be made in IBM cards. This will contain certain types of data not found on parcel cards.

17. COMMERCIAL LAND USE PROJECTION FOR PHILADELPHIA
Sho Maruyama
Preliminary report is available for inspection as a chapter of the Pilot Plan of the Philadelphia City Planning Commission. The Pilot Plan was published in very limited numbers for review by other city agencies. Final report will be published as part of Philadelphia Comprehensive Plan probable in 1959.
No previous Digest report.

Research Problem. To estimate future requirements for retail space in Philadelphia.

Method of Study. The 1947 Philadelphia-Camden Traffic Survey and The 1948 U.S. Census of Business, Retail Trade, by census tracts, are two local sources of raw data. Review of previously published materials revealed no study using similar data. Consequently, methods were borrowed from other types of economic analyses to utilize these sources.

The data was arranged to show for 1948 in each of 19 sections of the Standard Metropolitan Area (1) volume of retail sales by sales location and (2) buying power for retail expenditures by residence location. Buying power was located based on the distribution of shopping trips. The data was also arranged by three types of shopping areas: (1) the CBD, (2) the seven largest regional shopping areas, and (3) local shopping areas.

Total future sales in the Standard Metropolitan Area were determined from past ratios with national indicators, i.e., GNP, personal disposable income, etc. and accepted projections of those ratios and of metropolitan population. An hypothesis was made for the future distribution of sales and buying power, based on the 1948 model, known recent changes in shopping habits, and projected distribution of population in the Standard Metropolitan Area.

The existing retail floor area was surveyed in the field and measured from the Sanborn Atlas on a sample basis. Sales per square foot were made based on this data and on data from the 1935 U.S. Census of Business and the Philadelphia Central District Study. The future distribution of retail sales, and the projections of total retail sales and sales per square foot were combined to estimate the required retail floor area needed in the future for the 19 sections.

Major Findings.

1. The models of retail expenditures and sales distribution is a suitable subject for further investigation.

2. Sales per square foot of retail floor area is a fairly consistant parameter for establishments in any section, with shopping area of a given age and type of development, i.e., CBD, regional and local shopping area.

3. There is a definite relationship between national economic indicators, i.e., GNP, disposable personal income and retail sales in the Philadelphia SMA.

18. THE USE OF URBAN CHARACTERISTICS IN ESTIMATING INTERNAL TRAVEL PATTERNS
John W. Barr (under the direction of Harold L. Michael).
Master's thesis, January 1956.
Purdue University, School of Civil Engineering.

Research Problem. To evaluate the relationships between urban characteristics and travel patterns.

Method of Study. The data from origin-destination surveys made in three Indiana Communities having populations less than 50,000 were compared with similar data developed from measurable characteristics of the urban area.

Major Findings. Several of the more important inferences are as follows:

1. Total internal trips and trips generated by the central business districts are related to city size but are affected by other factors.

2. Passenger car trips generated by residential tracts show a strong relationship with tract population. The rate at which trips are

generated by these tracts appears to be affected more by vehicle ownership than by dwelling density or distance from the central business district.

3. Acreage of land use does not appear to be indicative of trip generation due to varying intensity of use.

4. Trips between the central business district and residential tracts, between pairs of residential tracts, and between residential and industrial tracts may be considered the basic trip movement of an area.

5. Trips between a central business district and residential tracts are largely accounted for by the combined effects of population compactness, vehicle ownership, and trip length.

6. Trips between residential tracts are affected by city size, ownership, and the population of the two tracts.

7. Trips between industrial and residential tracts are related to the employment and population of the connected areas. Trip length has little effect on these trips.

8. Numerous additional factors can alter rates of trip generation within or between tracts and must be accounted for before trip patterns can be reliably estimated.

9. A great deal of research is required and warranted in order to arrive at a systematic procedure which may be used to reduce the task of analyzing internal traffic patterns.

10. The values which appear of greatest importance in trip estimation generally show trends which may permit predictions of their values at some future date.

19. RURAL HIGHWAY CLASSIFICATION AND EVALUATION PROCEDURES FOR INDIANA COUNTIES
John E. Baerwald (under the direction of K. B. Woods).
Ph.D. Thesis, August 1955.
Purdue University, School of Civil Engineering

Research Problem. To develop procedures for classifying and evaluating county roads.

Method of Study. One county was used as a pilot county and various procedures were used and their effectiveness analyzed.

Major Findings. The study proposes a method of highway evaluation to establish an impartial priority value which portrays the relative needs of the various highway sections. Priority is based on the formula:

$$\text{Priority Rating} = 2.5\ (\text{Service Rating}^{1.25}\ \text{Log}\ \left(\frac{100}{\text{Road Rating}}\right)$$

where the Priority Rating has a practical range from one to 100 with a high value indicating a high priority. The Service Rating ranges from one to a maximum value of 50 and is composed of various elements which indicate the need for and use made of a highway section. The Road Rating ranges from one to a maximum value of 100 and is composed of various elements which indicate the physical condition of the highway section. It is believed that this Priority Rating formula is one of the first, if not the first, rational procedures to be based on the interrelationship between the need for the highway and the physical condition of that highway.

20. AN ANALYSIS OF HIGHWAY FINANCE AND ROAD USER IMPOSTS IN CANADA
Gordon D. Campbell (under the direction of A. K. Branham).
Ph.D. Thesis, June 1956
Purdue University, School of Civil Engineering.

Research Problem. To develop rational methods of allocating road and street costs among the consumers of the service supplied by the facilities and to determine what constitutes a transportation need.

Method of Study. Examination of the economic cost - price - demand relationships for road and street transportation service is utilized.

Major Findings. If the objective of a National, State, or Provincial Transportation Policy is to provide the most economical overall transportation system for that jurisdiction, then the highway finance problem should be resolved in light of current accepted economic theory. Herein the basic cost-price-demand relationships for road and street use should constitute the fundamental criterion for the solution to the planning and cost allocation problem. An examination of these relationships will reveal the importance of the marginal cost and marginal revenue concepts. Of course, we do not have market conditions in highway supply, and it is therefore impossible to strictly adhere to the dictates of these principles. However, the basic concepts should be borne in mind in highway planning, programming, and financing. Within the practical limitations of timing road and street development, it would seem desirable to adhere to these concepts in order to promote an economical and logical evolution in highway motor transportation and in all transportation.

21. PERCENTAGE OF EMPLOYED PERSONS USING PUBLIC TRANSIT FOR THE JOURNEY TO WORK
Hans Blumenfeld, Raymond J. Desjardins, Dr. B. A. Griffith.
Part of studies for Official Plan of Metropolitan Toronto Planning Area.
Metropolitan Toronto Planning Board; mathematical analysis carried out by K.C.S. Data Control Ltd., Toronto.

Research Problem. To predict distribution of future work trips between transit and private automobile.

Hypothesis.

(a) The percentage of trips to work made by transit ("transit share") is a variable dependent on three independent variables: distance from center, residential density and employment density; other independent variables can be introduced separately to modify equations describing the relationships of transit share to these three variables.

(b) Trips to work by pedestrians and by workers resident outside of the Metropolitan Area can be neglected as they accounted for only 2.43% and 3.88% respectively, of all trips to work in the area in 1954.

(c) Data obtained from a 25% return of questionnaires mailed to all known establishments with 30 or more persons employed are representative of all work trips.

Method of Study. The Metropolitan Area of 240 square miles was divided into 18 zones of roughly equal size. Transit shares of trips from zone of residence to zone of work were calculated for interchanges within each zone, between central and all other zones, between contiguous and between non-contiguous zones. Zones were classed as "contiguous" if distance between centroids was less than 6 miles.

Regression equations have so far been developed only for travel to ("inbound") and from ("outbound") the central zone from and to, respectively, the 17 other zones.

Major Findings.

1. The tabulation of all work trips, undertaken as a preliminary to investigation of transit shares showed a high degree of "cross-commuting" even where the number of jobs in the zone approximated or exceeded the number of resident workers. Only 15.5% of the residents of the 17 non-central zones worked in their own zone.

2. The tabulation of transit share of work trips showed that transit share decreased regularly both with distance of zone from center and with distance between zones.

3. Analysis of transit share of inbound and outbound work trips showed:

   (a) for outbound trips correlation with residential density of outer zone and distance from center was highly significant (80% error limits of about 15%). Employment density in outer zone was not substantially more significant and distance from center was slightly less significant than residential density of outer zones.

   (b) for inbound trips residential density of outer zone was moderately significant (80% error limits for about 25%) but distance from center was not significant.

Further Research. The data will be checked and supplemented by the results of an O & D survey made at place of residence in late 1956. Net densities may be substituted for the overall densities used. Regression equations will be developed for trips other than those to and from the central zone. (HB)

22. DISTRIBUTION OF POPULATION IN RELATION TO CENTER IN METROPOLITAN AREAS
Hans Blumenfeld, Donald Paterson, Dr. D. A. S. Fraser.
Part of studies for Official Plan of Metropolitan Toronto Planning Area. Metropolitan Toronto Planning Board; mathematical analysis carried out by K.C.S. Data Control Ltd., Toronto.

Research Problem. To predict distribution of total future population of Metropolitan Areas by concentric zones, based on observed regularity of past trend. Problem was outlined in article by Hans Blumenfeld "The Tidal Wave of Metropolitan Expansion" (Journal of the A.I.P., Winter 1954) which presented the data for the Philadelphia Metropolitan Area, 1900 to 1950.

Hypothesis. Population density in concentric zones is a variable dependent on three independent variables; distance from center, time and (or) population growth of entire Metropolitan Area.

Method of Study. The method of analysis was to fit various linear models by regression techniques. The data used were those for the Philadelphia Metropolitan Area for each decade from 1900 and 1950 and for the Toronto Metropolitan Area for the years 1929, 1939, 1949, 1954 and 1955.

Major Findings.

1. Linear relationships were found for the "suburban" or main zone of growth in the Philadelphia Area between 4 and 18 miles distant from the center and for the Toronto Area between 3 and 8 miles distance from center (data for more distant zones were not available in the Toronto Area). The data for the inner, "urban" and outer "rural" zones showed different relationships.

2. In the Philadelphia case both "time" linearly and "total population" linearly explain more than 99% of the variation in population density from year to year. In the Toronto case the relationship of population density to the "total population" variable was much closer than the relationship to the "time" variable. Therefore, the relationship was expressed by the ratio of: Percent increase in distance from center to a point of constant density to: Percent increase in total population of Metropolitan Area.

3. This ratio was found to be 0.83 and 0.85 respectively, for the Philadelphia and Toronto Areas. For example: if total population increases by 10% from year A to year B, and in year A an average density of X was found at a distance of 5 miles from the center, then in year B the same average density X will be found at a distance of 5.415 or 5.430 respectively, from the center.

4. The fact that the ratios for the two areas had almost identical values is of equal interest with the fact that the three selected independent variables explain 99% of the changes in the dependent variable.

Further Research. It is hoped that other planning and research agencies will investigate the validity of the equation for other Metropolitan Areas. (HB)

23. POPULATION AND EMPLOYMENT AS GENERATORS OF TRUCK TRIPS AND TRUCK MILES
H. Blumenfeld, R. J. Desjardins, N. Dodd, L. Casciato.
Work in progress as part of the preparation of the Official Plan of the Metropolitan Toronto Planning Area, Metropolitan Toronto Planning Board.
Data on trip lengths presented in "Truck Survey", published by Metropolitan Toronto Planning Board, December 1956.

Research Problem. To predict truck movements in a Metropolitan Area.

Hypothesis. Truck movements are a variable dependent on three independent variables: 1. number of residents, 2. number and industry of employed persons, and 3. time distance between clusters of 1 and 2.

Method of Study. All movements made by trucks registered in the Metropolitan Area on an average work day were found from a questionnaire sent to all truck owners and all trip origins and destinations were tabulated by 143 O & D Zones and 3 truck types, as well as by 24 hours. The following steps were:

1. Trips were tabulated and analyzed at zone of destination by straight-line distance from zone of origin.

2. Regression equations were developed (by K.C.S. Data Control Ltd., Toronto) relating number of trip destinations of light and medium and heavy trucks to resident population, total employment and manufacturing employment for 63 zones. Zones with less than 1000 destinations were omitted; 2 zones containing the C.B.D. and 3 zones containing the harbour were separated from the remaining 58 zones.

The following steps are planned:

2a. Equations based on several types of industry other than manufacturing.

3. Analysis of all truck movements by length of trip by zones of origin and destination.

4. Based on 3, development of regression equations based on location and on number and characteristics of population and employment.

Results from:

(1) a. Trips from all zones of origin were longer, on the average, the farther distant the zone of destination was from the center.

b. Heavy trucks made fewer, but longer trips, than light and medium trucks. Heavy trucks averaged 45 miles and light and medium trucks averaged 35 miles daily.

c. Trips of 5 miles or more accounted for 30% of all trips but for about 72% of all truck miles.

d. About 1,500,000 truck miles were travelled daily within the Metropolitan Area, about 6,500 truck miles per mile or slightly over 1 truck mile per 1 resident.

(2) a. 1000 residents generated 92 light and 26 medium-heavy truck trips.

c. Manufacturing employment generated no more medium-heavy and substantially fewer light truck trips than other employment.

d. The central business district generated the same amount of medium-heavy, but a substantially smaller amount of light truck trips than the other zones, relative to population and employment.

e. The harbour area generated more light and substantially more medium-heavy trucks than the other zones, relative to population and employment.

As there were 44 employed for every 100 population, results (a) and (b) appear to indicate that 57% of all light and 52% of all medium-heavy truck trips were generated by population and only less than half by employment.

These conclusions and in particular result (c) are contrary to the general assumption that manufacturing is the main generator of truck trips. The steps outlined above for completion of the project should help to clarify this important point. (HB)

24. GEOGRAPHIC ASPECTS OF THE SIZE AND ARRANGEMENT OF URBAN CENTERS
An examination of Central Place Theory with an Empirical Test of the Hypothesis of Classes of Central Places.
Brian J. L. Berry (under the direction of W. L. Garrison).
Master's Thesis (available on inter-library loan), completed January 1957.
University of Washington, Department of Geography.

Research Problem. To review currently available central place theory relating to the functions, size, and spatial arrangement of urban centers and to examine one of the basic implications of the theory (the hierarchical class-system implication), thereby filling one of the major gaps in present empirical work.

Hypothesis Tested. That there exists an hierarchical class-system of urban centers based upon the functions which the centers perform for surrounding areas.

Previous Relevant Research. Walther Christaller, Die zentralen Orte in Süddentschland, Jena, 1933; Rutledge Vining, "A Description of Certain Spatial Aspects of an Economic System," Economic Development and Cultural Change, 3 (1955), pp. 147-195; etc.

Method of Study. Statistical models were used. Functions performed by urban centers were analyzed to determine propensities for groups to occur utilizing ecological concepts of reflexive relationships; centers were likewise analyzed for grouping tendencies according to numbers of functions performed. Groupings of centers and functions were analyzed for associations.

Major Findings. That there does indeed exist an hierarchical class-system of central places. The finding applies to the study area of Snohomish County, Washington, and it is noted that studies of this type should be made in other areas. (WLG)

# RESEARCH DIGEST

Sponsored by the
Urban Planning Research Group



Vo. 4, No. 2 November 1957

Prepared and distributed by
Department of City Planning and Landscape Architecture
University of Illinois
Urbana, Illinois

William I. Goodman, Editor

Contents

## EDITOR'S NOTES

### Editorial Board

Since publication of the previous issue in May, 1957, the terms of two of the Editorial Board, F. Stuart Chapin, Jr. and Donald Foley, expired. The Board has chosen as new members Henry Cohen, serving in the Division of Administration in the Mayor's office in New York City, and Donald J. Bogue, Associate Director of the Population Research and Training Center, University of Chicago.

The reconstituted Board ratified several changes proposed by Louis B. Wetmore, effective with this issue. Professor William I. Goodman of the Department of City Planning and Landscape Architecture, University of Illinois, has been designated Editor of the Digest, while Professor Wetmore will continue to serve as a member of the Editorial Board. To keep up with the steadily augmented mailing list and the increased number of contributors to the Digest, the board approved an [illegible] e. The details are [illegible] elopmen[illegible] issue.

### Highways

Growing interest in highway problems becomes apparent with review of the projects listed in this issue under sections entitled Trafficways and Transportation. Several contributors are availing themselves of the research funds appropriated to the Bureau of Public Roads in connection with the Interstate Highway Program. These include not only planning technicians but individuals in several other disciplines. As it seems to be currently developing, this program is serving as a focal point of common efforts and closer association among researchers whose interests overlap in the field of urban and regional studies.

### Articles

In future issues, it is hoped that the Digest will carry articles on illustrative research programs now underway in the United States. Solicitation for such material will begin shortly.

### Credits

Contributors and correspondents who helped in the compilation of this issue are sincerely thanked.

At the University of Illinois, Mrs. Elaine Russell and Mrs. Mary Lemak, secretaries to the Department of City Planning and Landscape Architecture, and Dean Macris, graduate assistant in City Planning, assisted in the preparation of this issue.

William I. Goodman, Editor
Urbana, Illinois

25. COMMUNITY PLANNING AND HOUSING: An Aspect of Canadian Federalism
E. Peter Oberlander (under the direction of Professors Reginald Isaacs, Arthur Maass, Charles Eliot)
Doctor's dissertation for the Doctor of Philosophy in City and Regional Planning, December, 1956
Harvard University Graduate School of Design
No previous Digest Report.

Problem. To record and evaluate the roles of and opportunities for Community Planning and Housing within a Federal framework of law and public administration. To identify the legal and administrative relations between Federal and Provincial Governments in relation to Community Planning and Housing. To formulate and evaluate clearly a framework of cooperative action between Federal, Provincial and Municipal levels of Government for purposes of comprehensive community development. The totality of Governmental powers divided between the Federal and Provincial level in Canada demands a total framework of action in relation to Community Planning and Housing.

The planning process and its effective implementation must be based on the complete and integrated hirarchy of Government and its comprehensive powers of action, despite being an apparently exclusive provincial responsibility or a delegated municipal function.

26. LAND USE RELATED TO SELECTED FISCAL ISSUES
Julius Margolis
Research Report II, Real Estate Research Program, Bureau of Business and Economic Research, University of California 1957. Price $.50.
No previous Digest Report

Research Problem. A broad objective of the study was to examine certain aspects of the relationship between land uses, taxes, and other fiscal problems at the local level of government. The study was developed as three essays which originally appeared as articles in the National Tax Journal and The Journal of Political Economy. The first of these evaluates the municipal policy of encouraging specific land uses to improve local fiscal conditions. The second considers the fiscal policies of the different types of cities in a metropolitan region, discusses each of the items entering into the municipal property tax rates that have been analyzed, and shows how these elements are related to the dominant activities within the city. A third essay includes other types of local government in the analysis of fiscal structure and economic conditions.

Major Findings. Attention in the report centers around the current municipal policy which encourages certain land uses by means of zoning ordinances and capital improvement programs with the objective of improving local fiscal conditions. The policy of endeavoring to attract industrial uses for the purpose of alleviating municipal fiscal problems was found to be questionable. Statistical analysis on which the study is based indicates that the assumption of a constant relation between land uses and government costs and revenues is erroneous. Rather, there is a very complicated relationship between various land uses, tax systems, municipal services, other noneconomic factors, and the fiscal results achieved.

"Business" cities (or those with a high ratio of jobs to residents) have a higher municipal property tax rate owing to higher public expenditures per capita, lower real property values, and insufficient fiscal advantages received from nonproperty tax revenues.

It was found that in the San Francisco Bay Area the tax rates for dormitory and balanced cities are similar, raising doubts as to the effectiveness of the policy of attracting industry in order to reduce property tax rates. (MB)

27. URBAN PLANNING IN RELATION TO URBANIZATION TRENDS IN LATIN AMERICA

Francis Violich
Department of City and Regional Planning, University of California, Berkeley.

Research underway; preliminary conclusions to appear in article form in the fall issue of the Journal of the American Institute of Planners; in Vivienda y Planeamiento, Nos. 24 and 25, Pan American Union (in Spanish); and in other publications.

Research made possible by: Travel Grant from Rockefeller Foundation to the University of California; Research Assistance from Institute of Social Sciences and Center for Latin American Studies, University of California; and cooperation by the Division of Housing and Planning, Pan American Union, Housing, Building and Planning Branch, United Nations, and Inter-American Housing Center, Bogota.

No previous digest report.

Research Problem. The purpose of this study is to relate the trend toward urbanization in Latin America in recent years to local problems of urban physical growth and to the organization for urban and metropolitan regional planning.

Previous Relevant Research. The study stems from the investigator's earlier field study and published material dealing with problems of low-cost housing and urban planning in Latin America. While housing has had a good deal of attention in recent years through the Pan American Union and the Inter-American Housing Center, relatively little work has been done on urban planning.

Method of Study. Field study was carried out during the fall of 1956 in about 25 urban areas in South America and in these areas in Mexico in the summer of 1957. Principal sources of material included municipal, regional or national offices dealing with urban planning, census bureaus and universities offering course work in urban planning. From this material general conclusions applying to Latin America as a whole are being drawn as a background for more detailed, specific case studies of the situation in a select group of about 20 urban areas.

Major Findings. The increased rate of urbanization in most countries is intensifying the traditional concentration of population in single large cities in each country. This has given rise not only to unbalanced regional development but as well to problems of physical organization of urban areas which are far beyond the capacities and administrative procedures of urban planners and, in general, of local governments. The urban planning field, as a specialized profession, is frustrated in its attempts to establish itself due to a lack of municipal organiaation, proper university training programs and insufficient contact with developments in other parts of the world. (FV)

28. CHANGES IN URBAN OCCUPANCY OF FLOOD PLAINS IN THE UNITED STATES
Gilbert F. White, Wesley C. Calef, and Harold M. Mayer
Department of Geography, The University of Chicago, under grant from Resources for the Future.
Field work completed. Final report in preparation. To be published in the University of Chicago Department of Geography Research Series.
No previous digest report.

Research Problem. To explore the changes which have taken place in the occupancy of urban flood plains in the United States since the first national flood-control legislation was passed in 1936.

Hypotheses. That while flood damage has been reduced in protected areas through engineering works it has increased in other areas in situations and in response to factors which can be identified.

Method of Study. From published reports and from field interviews in district offices of the Corps of Engineers a list of urban areas having flood problems was compiled. These areas are being classified according to the characteristics of the floods, the flood plains, and their human use. In 16 selected areas an intensive study was made of specific changes in structures between circa 1936 and 1957.

29. THE ALIEN TOWNS: PATTERNS OF SETTLEMENT IN BUSOGA, UGANDA
Ann E. Larimore
University of Chicago, Department of Geography. Ph. D. dissertation. To be published in University of Chicago Department of Geography Research Series. $3.00.

Research Problem. To investigate processes of multi-racial urban development in British East Africa as exemplified in the growth of Jinja, the primary center for Uganda's heavy industrial development, and related settlements in the surrounding rural areas.

Method of Study. Intensive field work, including interviewing and mapping in the Municipality of Jinja and the District of Busoga, was amplified by analysis of the economic, political and legal conditions providing a framework for urban growth in Uganda.

Major Findings. Urban growth does not follow the pattern established in Western economically developed countries, but is modified by the tribal situation in which it occurs. Problems

of urbanization arise from the introduction of Western forms and concepts of urban settlement into an African community which is not organized to accept or adapt them. The towns of East Africa are enclaves of European and Indian population performing increasingly necessary functions for the country as a whole but only indirectly related to the African rural areas. The hinterlands of such towns are the Indian trading centers, plantations, and estates rather than the rural areas of dispersed African subsistence holdings. The degree of integration of the African tribes of the rural areas with the multi-racial societies of the cities indicates the relative economic and social development of the country.

30. THE PORT OF CHICAGO AND THE ST. LAWRENCE SEAWAY
Harold M. Mayer
Department of Geography, The University of Chicago. Prepared under a publication grant from Bacon Whipple and Company. Published as: The Port of Chicago and the St. Lawrence Seaway. University of Chicago Press, August 1957, 283 pp. $5.00.
No previous digest report.

Research Problem. "To present an objective, comprehensive, and impartial view of the present status and problems of development of the Port of Chicago and its relations to other waterway improvements."

Method of Study. This book presents a summary of numerous previous studies made by the author and by others, and in addition presents suggestions as to the possible direction of public policy and activities relating to waterborne commerce and facilities at the Port of Chicago.

Major Findings. The Port of Chicago will have substantially increased water-borne commerce as a result of the general expansion of industry and especially the completion of the St. Lawrence Seaway enlargement and the Calumet-Sag project. Existing facilities at the Port of Chicago are the most comprehensive and modern on the Great Lakes, but will require expansion and additions. The best place for the major comprehensive port terminals and industrial development is in the Calumet district of Illinois and Indiana, centering on Lake Calumet, but small-scale specialized facilities, with initial development on a very modest scale, will be required in downtown Chicago Harbor. There is no comprehensive port agency capable of dealing with the problem throughout the metropolitan area, and, in order to secure adequate planning and development with all parts of the port in proper balance, a comprehensive interstate port agency is suggested.

31. THE SCRAP IRON AND STEEL INDUSTRY IN THE CHICAGO METROPOLITAN AREA -- A STUDY IN WHOLESALING LAND USE
Gerald Gutenschwager
Department of Geography, The University of Chicago (Masters thesis under direction of Harold M. Mayer), with cooperation of the Department of City Planning, City of Chicago.
Field work under way.
No previous digest report.

Research Problem. To establish the locational relationships of this type of land use to other land uses and to transportation facilities as a step toward understanding the linkages which exist in the urban community.

Method of Study. For each of the years 1939, 1948, and 1954 all of the scrap wholesalers in the standard metropolitan area will be located on a map and classified according to type of activity. Locational factors will be determined by interviewing all the large dealers and brokers and a sample of the smaller ones.

Hypotheses. The scrap iron and steel dealers are located with primary orientation to their sources of scrap and not with any strong focus on a particular location. In spite of relatively small capital investment in structures and other improvements on the land and the seemingly consequent locational mobility, the dealers change location relatively infrequently.

32. THE OIL CITY CENTRAL BUSINESS DISTRICT AS EXEMPLIFIED BY THE MIDLAND-ODESSA (TEXAS) COMBINE
Dickinson Weber
Department of Geography, The University of Chicago. (Master's thesis, under direction of Harold M. Mayer)
Field work completed; report in preparation.
No previous digest report.

Research Problem. What are the characteristic features of the organization, progression (the urban organic process), and appearance in a climax version of central business districts of specialized cities; specifically, the oil cities of Midland and Odessa?

Hypothesis. That there exist characteristic and specialized central business districts just as there are genetically characteristic and specialized types of cities, and, given independent development, these urban forms should reflect in compact form the type of specialization that accounts for the undiversified economic base of an entire urban region.

Method of Study. Field mapping, interviews, and analysis, using a combination of methods developed by the Department of Geography at the University of Chicago, the analytical methods, insofar as applicable of Murphy and Vance, and the techniques of the Rannels CED study of Philadelphia, together with other appropriate techniques.

33. URBAN GEOGRAPHY AND THE AMERICAN CITY
Raymond E. Murphy
Writing in progress. Hope to be ready for publication in book form approximately spring of 1959.
Graduate School of Geography, Clark University.
No previous digest report.

Research Problem. This is an attempt to organize the material of a rapidly growing field, urban geography, along systematic lines.

Method of Study. The approach consists of stating the central theme of the field and then examining the research that has been done and the techniques and methods represented. Problems that need studying are considered as well as possible methods of attack. Emphasis is upon the American city and the growing body of generalizations about city patterns. Includes a bibliographic summing up of the literature for each of the various aspects of the field. (R.E.M.)

34. MEASURING THE QUALITY OF HOUSING
Professor Glenn H. Beyer, Project Director; George Price, Research Assistant; Cornell University, Department of Housing and Design and the Housing Research Center in cooperation with the U.S. Bureau of the Census.
No previous digest report.

Research Problem. To develop a simple and appropriate technique for measuring the quality of rural and open country housing (including structural condition, facilities and equipment, and planning.)

Hypotheses.
1. There exists a need for a technique which lies half way between those of the Census Bureau and the A.P.H.A.
2. That there are significant enough differences between urban and open country housing to warrant special measuring techniques.

Method of Study. Field testing and analysis of alternate techniques.

Completion Date. One year study to be completed in the summer of 1958. (G.H.B.)

35. HIGH COST OF PUBLIC HOUSING
Professors John C. Gebhard and Alexander Kira, Project Directors; H. Everett Drugge, Research Assistant; Cornell University, School of Civil Engineering and the Housing Research Center. Sponsored by the New York State Division of Housing.

Research Problem. To study the possibility of reducing the construction costs of high-rise public housing projects. This particular study will concentrate on aspects of the structural frame.

Completion Date. One year study to be completed in the summer of 1958. (G.H.B.)

36. THE BASE -- SERVICE RATIO AND COMMUNITY INCOME LEVELS
John Reinecke (under the direction of Robert O. Harvey)
Department of Finance, University of Illinois
No previous digest report.

Research Problem. To determine if community income levels influence the ratio of growth to service employment and if the relationship can be measured.

The technique is to estimate incomes for cities for which growth-service ratios are available and compare income measures with the ratios.

To be completed, Spring, 1958. (ROH)

37. RESEARCH PLANNING FOR THE DEVELOPMENT OF A RIVER VALLEY
Joseph Russell and Louis B. Wetmore
Research began June 1957--Scheduled completion February 1958
Conducted at the Universities of Illinois, Indiana and Purdue.
No previous digest report.

Research Problem. The formulation of a study program, to be followed by the Wabash Valley Association in planning the development of the Valley's resources for the greatest local and regional benefits.

Method of Study. The research thus far has been allocated among the three universities.

A) Illinois--Definition of the problem and regional study procedures.
B) Indiana--Alternative geographic areas of study within the water shed.
C) Purdue--Assumptions on working hypothesis.

The three universities are concurrently working on:

1.) A brief appraisal of present valley conditions.
2) A grouping into a priority order of various research studies.
3) Development of a research organization for the association.

Major Findings. The study has not progressed far enough to evaluate the findings.

38. EMPLOYMENT LINKAGES IN A SMALL METROPOLITAN AREA
George T. Marcou--Bureau of Community Planning, University of Illinois
Work started June, 1957
No previous digest report.

Research Problem. Preliminary studies to arrive at comparative predictive formulas to determine employment linkages between communities in the Central Illinois region and work places in Decatur, a major central city of that region; to test these formulas in other major cities of the region.

Hypothesis. The number of employees from any community who work in the major work places in Decatur is dependent on one or more of a number of factors. Such factors include physical characteristics such as the time-distance from the community to the work place; community characteristics such as employment opportunities in the community relative to regional opportunities; work place characteristics such as size, rate of expansion. These factors determine in part the number of employees that a work place in a central city such as Decatur will be able to draw from the various other communities in the region.

Method of Studies. In January 1957, the Illinois Division of Highways made a survey of employee residence for Decatur work places employing more than 100. As a result, figures were obtained for the number of employees from each community in the Central Illinois region working in each of the major Decatur work places. For any one community or group of communities these employee figures represent the independent variable.

The dependent variables are these factors which are thought to determine the extent of employee commuting and some of which have been previously mentioned.

Relevant relationships are to be obtained by correlating employee figures for each work place and each of these measured factors; for communities outside Decatur, viewed singly or in groups.

39. CASE STUDIES IN REAL PROPERTY INVESTMENT EXPERIENCE
Robert Bethel (under the direction of Robert O. Harvey)
Department of Finance, University of Illinois

Research Problem. To determine the actual experiences of individual investors in real estate. To evaluate investment opportunities available to small-scale real estate investors in urban regions.

Method of Study. The case study method is used exclusively; the study is a part of the case collection program of the Urban Land Economics Program, College of Commerce and Business Administration, University of Illinois.

To be completed, summer, 1958. (ROH)

40. METROPOLITAN DEVELOPMENT PROBLEMS IN THE PIEDMONT INDUSTRIAL CRESCENT

F. Stuart Chapin, Jr., Shirley F. Weiss, and Robert L. Wilson

One of a major group of studies concerned with development patterns and problems in newly forming metropolitan regions.

Previous digest report: Item No. 15, Vol. 4

Research Problem. The immediate purpose of this research is (1) to identify the range and describe the characteristics of the metropolitan development problems faced by clusters of cities in the Piedmont Industrial Crescent, as they are emerging today and are likely to develop in the next 10 to 20 years, and (2) to suggest approaches for solving or in the future avoiding such problems. The ultimate purpose is to identify guide lines for rational metropolitan development in newly forming metropolitan regions in the South and elsewhere.

Hypotheses. The rapid growth of clusters of cities in the Piedmont Crescent is creating serious land development problems. Characterized sometimes by uneconomic "scatteration," sometimes by a massive kind of "urban sprawl," and sometimes by attenuated ribbon development along the major highways, the land development patterns in these embryo metropolitan regions display similarities to those usually associated with the traditional large metropolitan area. The land use configuration within these clusters appears to be developing without regard for certain fundamental regional considerations, and local major street patterns are sometimes inconsistent with sound regional land use objectives. Not only are costs of developing or expanding community facilities to serve these kinds of new development high, but their living qualities are sometimes seriously affected. Fully effective approaches for dealing with these problems have not yet been developed. Furthermore, the polynucleated form of metropolitan region requires a different kind of solution than what may be indicated for the traditional single-centered metropolitan region.

Method of Study. Three phases:

(1) A pilot study of the Three-County Area (Davidson, Guilford, and Forsyth counties), seeking to identify the nature and seriousness of existing and emerging problems of land development in relation to economic growth potential, construction of transportation facilities, provision of community facilities, obsolescence of central core, and extension of fringe areas. An important feature of this part of the research is an investigation of land development problems as perceived by the industrialist, the real estate man, the builder, and the public and private official supplying community facilities or services. Survey research and panel interviewing will be used to obtain measures of perception among these groups.

(2) Development of approaches to the solution of the problems identified in the first phase, with particular emphasis on methods of controlling land development in the interest of eliminating or reducing the impact in newly forming metropolitan regions. The feasibility of controls governing industrial location, highway location, utility extension, among others, will be investigated.

(3) Comparative studies with other metropolitan-like clusters of cities and with the more conventional single-centered metropolitan areas such as Atlanta. Comparisons will center on similarities and dissimilarities among land development problems, considering differences which may exist in land use policies, in governmental structure, and other variables. The applicability of approaches developed in the second phase to other metropolitan areas will be investigated, both in the polynucleated and the single-centered metropolitan region.

Major Findings. Research in early stages. Estimated completion date, Spring 1960. The findings will be summarized in a research monograph. They will also provide material for the projected research volume on the Piedmont Industrial Crescent, to be prepared in connection with the five-year Urban Studies Program. (FSC)

41. RECREATION PLANNING FOR LEISURE BEHAVIOR: A GOAL-ORIENTED APPROACH

Herbert J. Gans, Ph. D. Dissertation, Professor Martin Meyerson, Supervisor.
Department of City Planning, University of Pennsylvania, 1957
No previous digest report.

Research Problem. To develop and apply a goal-oriented approach to public recreation planning, by which the city planner or urban policy-maker can advise on the allocation of limited resources on the basis of a priority-ranking of explicit community goals. The approach requires the determination of recreation goals, and the development of programs empirically tested to achieve these without undesirable consequences for other goals, and consistent with the community's resource situation. The data were gathered primarily through a re-analysis of existing literature in recreation, recreation planning and city planning.

Procedure, Results and Conclusions. The first six chapters analyze contemporary public recreation, in terms of the goals of three interest-groups: the suppliers of its facilities and Programs, their users, and the community and its decision-makers who determine allocations. An institutional analysis shows that the stated goals of the suppliers reflect the recreation movement's desire for user self-improvement through "constructive" leisure. The goals actually pursued seek to maximize specific facilities for all ages under municipal administration and professional supervision-without evidence that these implement stated goals.

A survey of use studies dealing with the characteristics of users, and use patterns in playgrounds, recreation centers and parks, shows that these facilities appeal to only small proportions of all residents, and to a few specific age groups. Moreover, user goals, though latent, vary from those the suppliers would have them seek. There seem to be few community goals for recreation. Polls and voting studies suggest a generally low level of community interest in public recreation.

An analysis of actual policies of the suppliers demonstrates that these are combinations of major goals of users, suppliers and community decision-makers. The latter allocate limited resources among competing municipal agencies by gauging the intensity of community interest in their services. The suppliers must therefore maximize evidence of such interest. Consequently, they offer activities closer to user preferences than to their own goals for "desirable" leisure behavior.

The remaining six chapters deal with recreation planning. Current planning methods are analyzed for the implications of

[illegible]

their reliance on "standards." These are quantified statements of supplier goals, which neglect user and community goals as well as the recreation actually supplied, and are therefore in-appropriate for application by the city planner. Moreover, the emphasis on self-improvement and middle class productivity implicit in the suppliers' leisure concept and goals excludes too many alternative forms of leisure to serve as the sole basis for community-wide recreation planning. User goals must also be considered.

Goal determination, and empirically verifiable relationships in the goal-program-consequence triad can, however, be substituted for planning standards. This is illustrated by a number of models, each of which outlines some programs necessary for the achievement of a stated goal and the planning consequences that follow. Various user and supplier goals are employed in models, but major emphasis is placed on describing recreation systems for various sets of user-publics, classified by such characteristics as age, socio-economic background, or regularity-non-regularity of public facility use.

The community must synthesize goals to determine those for the allocation of public funds to recreation. The recommended synthesis would give primacy to user goals, but with more general community goals determining which user-publics had highest priority, and with supplier goals functioning in facility design. In practice, this would result in an incremental, user-oriented public recreation system which reduces the gap between existing facilities and recreation needs as felt by the users, in line with community priorities and resources.

Given the methodological and strategic difficulties of implementing an approach starting from goals, a feasible interim method is develop in which goals underlying current planning solutions are made explicit, so that undesirable goals may be replaced within alternative programs. (H.G.)

42. EFFECT OF NON-LIMITED ACCESS BY PASSES ON TWO CITIES
Charles Pinnell (under the direction of Harold L. Michael)
Research project in progress (October 1957) and scheduled for completion in February 1958. A researdh report will be made.
Research is being conducted by the Joint Highway Research Project of Purdue University with the cooperation of the State Highway Department of Indiana, the Indiana State Police, and the cities of Kokomo and Lebanon, Indiana.
No previous digest report.

Research Problem. This study is to determine the longer term effects (5 to 6 year) of a non-limited access bypass on traffic, accidents, land use, land value, and business in two cities, Kokomo and Lebanon, Indiana.

Previous Relevant Research. Two reports were made entitled, "Engineering and Economic Study of Kokomo, Indiana Bypass," 1951 and "Engineering and Economic Study of Lebanon Indiana Bypass" 1952. Both were issued by the Joint Highway Research Project, Purdue University and neither is available except on loan from that organization. These two reports cover the short-term effect on traffic, land use, land value, accidents and business in the two communities. "Before" and "after" studies (before - study of conditions immediately prior to construction of the bypasses; after-study of conditions 6 months to one year after opening of the bypasses) are the technique of study used.

Method of Study. Data on present traffic conditions, accidents, land value, land use, and economic conditions of retail businesses are being collected, both adjacent to the by-pass, in the central business district of the cities, and in other locations in the cities. These will be analyzed and compared with conditions found in the earlier studies.

Major Findings. Not complete by October 1957. (HLM)

43. THE ESTIMATED EFFECTS OF FOUR PROPOSED SHOPPING CENTERS ON METROPOLITAN LAFAYETTE, INDIANA
Mart Kask (Under the direction of Harold L. Michael)
Master's Thesis, August, 1957
Purdue University, Joint Highway Research Project, School of Civil Engineering.

Research Problem. This project reports the estimated effect on a small city of four proposed shopping centers.

Method of Study. In the study an economic analysis was made to determine whether Metropolitan Lafayette will be able to support all the shopping center developments presently

planned for the future. This involved: an appraisal of Lafayette's economic base and its future; the determination of Lafayette's trade area by the application of the law of retail gravitation; an estimation of present population and the anticipated future growth; and a study of incomes of residents and their retail expenditures in the trade area. A thorough review of literature in the shopping center field provided a guide for the procedure followed in the economic analysis. The existing traffic flow in the vicinity of the proposed shopping centers was determined from automatic traffic recording counts while traffic volumes for the year of 1963 were estimated based on present traffic volumes and anticipated future developments.

The estimated 1963 pre-Christmas peak hour traffic flow in the vicinity of the three proposed shopping centers consisting of shopper traffic and non-shopper traffic served to indicate the locations where major traffic congestion attributable to shopper traffic would occur.

Major Findings. Lafayette can support only three of the preposed centers. The road net in the area of the centers will require the providing of additional capacity because of the centers. No consequential adverse economic effects will result to the Lafayette community because of these shopping centers.

44. A FIELD THEORY OF LAND USE AND THE MOVEMENT OF PEOPLE
Robert T. Howe (under direction of K.B. Woods)
Research project is in progress. Planned completion data is September 1958.
Purdue University, School of Civil Engineering

Research Problem. This study is attempting to relate the movement of people for trips which must be made, i.e., trips to centers of employment and shopping, to certain principles of electrostatic field theory.

Method of Study. A simple hypothetical model community is considered with those regions of the earth which are useful to man such as forests, waterfalls, good agricultural land, etc., considered to carry net positive charges. All human beings carry net negative charges. When man builds anything, it is hypothesized that he removes electrons from the raw materials and thereby creates additional net positive charges, which in turn tend to attract more people. Several centers of positive charge may be operating on a person and attracting him to them. The intensities of the several "fields" affects his movements.

[illegible]

The theory will be used to predict work trips for residents of West Lafayette, Indiana and these predictions will be compared with the results of a 1953 Origin and Destination Survey of that city.

Major Findings. Not to this stage. (HLM)

45. ATLAS OF HIGHWAYS AND URBAN CENTERS
J. H. Anderson, R. Boyce, W. L. Garrison, D. F. Marble, M. E. Marts, R. L. Morrill, J. D. Nystuen.
Sponsored by the Interim Committee on Highways, Streets and Bridges, Washington State Legislature, to be published by the Committee, Summer 1958.
No previous digest report.

Research Problem. In the last few years there have been approximately 50 studies which treat empirically the impact of changed highway facilities on urban communities. These studies differ greatly in objectives, methods, and findings, but it is presumed that a useful purpose would be served in bringing their information together in a central publication.

Method of Study. Available materials have been accumulated and are being arranged in as comparable a form as is practicable. (W.G.)

46. HIGHWAY TRANSPORTATION AND URBAN ECONOMIC ACTIVITIES: THE CASE OF MARYSVILLE, WASHINGTON
J. H. Anderson, R. Boyce, W. L. Garrison, D. F. Marble, M.E. Marts, R. L. Morrill, J. D. Nystuen.
Sponsored by the Interim Committee on Highways, Streets and Bridges, Washington State Legislature, to be published by the Committee, Summer 1958
No previous digest report.

Research Problem. Because of the accelerated highway construction program there is currently a great deal of interest in the impact of transportation changes on established features of urban communities. The present study is one of a series which will develop empirical and theoretical information on this problem.

Major Hypothesis. The level of any urban activity is a function of its location. This hypothesis identifies a family of location problems. Its distinctive characteristic here is the treatment of the highway as a location parameter.

Method of Study. Marysville, Washington was selected as the location for this study which is considered to be a pilot study. State tax records, land value data from public records and trip interview data are being developed as the chief sources of information. These data will be cast into an empirical model and subjected to regression analysis in the near future. (WG)

[illegible]

47. INVESTMENT POLICY AND TRANSPORTATION COST IN A HIGHWAY SYSTEM
William L. Garrison and Duane F. Marble.
To be presented at the January Highway Research Board Meetings.
No previous digest report.

Research Problem. In spite of the rich location theory available to researchers there is little in the way of theory to guide planning the location of highway facilities in recognition of the accompanying problem of the arrangement of land uses. The present study makes a tentative development of such theory.

Method of Study. The problem is cast as a programming problem with the objective of minimizing the joint cost of investment and over the road transportation costs in the system. The objective function is subject to a group of restraints which spell out the problems of supplying and shipping from all urban centers. The dual problem is also examined.

Major Findings. The formulation spells out the nature of the problem in a manner useful for conceptual and pedagogical circumstances. Too, the efficiency prices evidenced in the dual problem point out the place of location rents and transportation costs in planning. (WG)

48. URBAN FREEWAY DEVELOPMENT AND FINANCING
E. M. Horwood, R. H. Meese, R. B. Sawhill
Work in progress as contract research sponsored jointly by the Washington Highway Commission and State Legislature under Section 33 (O), Ch. 172 Laws of 1957.
No previous digest report.

Research Problem. The improvement of urban extensions of state highways to freeway standards represents a constantly increasing percentage of state highway expenditures. The construction of these facilities can lead to great increases in the value of benefited property. The prospect of such windfall benefits tends to arouse controversy over each prospective freeway or bridge location, thus delaying needed development. Can recent findings of the Washington Highway Research Council relative to the effect of freeway access on real property values be used to recover some part of the increase in the value of the benefited property?

Previous Relevant Research. Washington State Highway Cost Allocation Study, particularly Part V, dealing with changes in property values near freeways.

[illegible]

Method of Study.

1) Survey of the probable pattern of future freeway development in each of the state's four metropolitan areas.
2) Review of the findings of the regional studies in the light of freeway development in other parts of the nation.
3) Estimation of the extent of the area likely to be affected by freeway development in each metropolis and the resulting incremental value of real property.
4) Determination of the need for enabling legislation.

Major Findings. Study presently in inventory stage. Final report is due in September, 1958. Preliminary report planned for late 1957. (EH)

# SUBJECT INDEX, VOLUME 4, 1957

(Reference is to Item Number of Abstract)

# RESEARCH

# DIGEST

Sponsored by the
Urban Planning Research Group



Vol. 5, No. 1 April 1958

Prepared and distributed by
Department of City Planning and Landscape Architecture
University of Illinois
Urbana, Illinois

William I. Goodman, Editor

Contents

## EDITOR'S NOTES

### Article

The first contribution of an article is carried in this issue, a discussion of research operations in a regional planning agency. It uses the author's experiences in the Detroit area as a case study. Additional articles, are being prepared.

### Editorial Board

A meeting has been scheduled in Washington, in connection with the conference of the American Society of Planning Officials, of the Editorial Board. Professor Melvin M. Webber of the University of California has been invited to participate in his forthcoming capacity as Editor of the AIP Journal. Cross-ties with that publication are scheduled for discussion, as well as other items of current interest.

### Subscriptions

Since institution of the annual fee, effective with the previous issue, our paid subscribers have been reduced by about one-third in comparison with the former mailing list, a reduction accomplished in some measure through consolidation of subscriptions around institutional libraries. The question of how extensive the circulation of the Digest should be has not yet been resolved. Some contributors prefer to reach only a limited audience during their research process. We welcome suggestions from subscribers in regard to this matter.

### Credits

Special thanks is due to the Bureau of Community Planning for help in publishing this issue.

William I. Goodman, Editor
Urbana, Illinois

# REGIONAL PLANNING RESEARCH

by Paul Reid[1]

In the Regional Planning Commission of the Detroit metropolitan area, we have sought to relate research to the people for whom and with whom planning is being done. Research has been regarded as a tool and the handmaiden of the planning process. In the early months of the agency, T. Ledyard Blakeman (its first director) established the principle that comprehensive plans for the region must reflect physical and social research, tempered by existing physical conditions and by desirable living and working goals. The resolution of June, 1947, which created the Regional Planning Commission specified certain research objectives:

> "Immediate: (1) To ascertain and appraise trends in industrial location, residential development, and land utilization and improvement in the metropolitan area, and (2) To measure and interpret population changes, both in number and composition, and in terms of their distribution throughout the area. Long-Range: To investigate and determine the economic and social needs of the region which are to be served by comprehensive regional plans."

The research program has been basic and continuing. It has resulted in definite products as well as unexpected by-products, both of which have proved of practical value to effective planning.

Approach. Every region is an abstraction. The metropolitan region is an abridgement of a larger state or inter-state area, whether it is determined by the Bureau of the Census definition of a standard metropolitan area or is geographically tailored to fit particular problems and political practicalities. The research program of such a region, however, cannot be limited to the official boundaries. It needs to feel free and even impelled to follow physical and social factors whose out-reach and in-reach cross these arbitrary lines.

Location of sources of information is a particularly vexing problem for regional planning research. Viewed as a family of communities, the region contains many sources of data. It is important to recognize at the outset that resources for information consist not only in tabulated or collectable data, but also in people. Many people--governmental officials, business men, industrialists, social agency staffs, and others--have provided us with a wide variety of information. But even more, a number of them have afforded us invaluable insights out of their experiences. Our research staff has

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1. Executive Director, Detroit Metropolitan Area Regional Planning Commission.

been stimulated and encouraged by such assistance in their approach to physical and social problems with which our planning is involved.

Structure. The research program of the Regional Planning Commission in the Detroit area has an interesting genesis. The head of the research department, after getting acquainted with a new area and beginning to get into some of the text data available, began talking with a number of people in the region who were involved in various types of research directly or tangently related to planning. Among these people happened to be the dean of the liberal arts school of Wayne State University. Out of these talks came the idea and the process of developing an advisory Research Committee composed of some fifteen to twenty people involved in various types of governmental, industrial, retail, and utility research.

This committee made the dean of the liberal arts school its chairman and began molding a program of research touched off by the preliminary work of the research director. One of the first steps was to expand this program by getting comments and suggestions from various department heads of Wayne State University. These suggestions were talked over in the committee and a comprehensive research program hammered out in a series of discussions. The research committee was set up to meet bi-monthly and has continued to do so over the past nine years.

One of the major roles of the research director in this situation was to link the physical and social planning job to the more limited economic research with which the various committee members were acquainted. A constant emphasis was the tie-in between basic, social and economic facts and trends, and physical planning in the Detroit region.

Each major study undertaken by the research staff was first discussed with members, or a sub-committee, of the Research Committee. This procedure involved the development of an outline for the study as well as solicitation of sources and items of information. It also included criticism and revisions of the first draft of such studies as well as final general approval of the completed text.

About five years ago, a standing sub-committee was established, devoted to the task of making annual estimates of occupied dwelling units and population for all governmental units in the region. On this standing committee are representatives of the major public utility company, a university sociologist, market analysts from two metropolitan newspapers, statisticians from the chamber of commerce and the board of health, a housing market analyst and a labor market analyst, along with staff members of the Regional Planning Commission. The yearly output of this committee has gained region-wide attention. Governmental units use the estimates in making up their annual budgets; private agencies employ the data in their own special interest operations. These materials have served admirably--though somewhat unintentionally at the outset--as a means of making people aware of the work and of the nature of the program of the Regional Planning Commission. This is an example of what was mentioned earlier as "by-products" of the research program.

Major Blocks. By long experience and understanding the manufacturing aspects of the regional economy were recognized as the major economic feature giving the Detroit area its character. It was therefore, obvious that the first avenues of the research program led into a study of the manufacturing economy, as it related to the nation and to other major metropolitan areas and as it was composed of its various local integral parts. Paralleling the manufacturing study was the study of population growth and characteristics and the relationship between economic growth and population growth. Flowing from these two major lines were specialized studies of particular parts of the manufacturing economy, particularly the automotive sector, and from the population studies, specialized investigations of school age people and the increase in population in these age ranges.

We are now embarked on studying other sectors of the economy especially retail and wholesale trade, and agriculture in the region. These aspects of the economy will be related to the basic manufacturing sector and an integrated concept of what makes the Detroit region click from the economic standpoint will be the major objective.

Continuing Program. Along with these basic studies, we have by force of circumstances kept abreast of new plant developments and movements in manufacturing, of home building, and of retail shopping center growth. The manufacturing plant data have been kept on a running card file and published from time to time in summaries as well as in map form. Quarterly and annual reports on residential building permits are issued. An annual report is published--with maps--on suburban shopping centers--established, in construction and planned.

Under a current 2-year planning assistance grant from the Federal Housing & Home Finance Agency, we have a series of research projects integral to our physical planning job. One of these involves a recreational study, both in terms of existing recreational land and its uses, involving origin and destination data, and also as it is related to future desires, needs and potentials for a regional land recreation plan. Another project involves a study of community organization and patterns with an inventory of what's now the pattern and with a projection of a future pattern of functional planning districts for the comprehensive plan of 1970. A series of economic base studies will dig more deeply into the composition of the economy and the interaction of its various parts, especially as they relate to land use needs and to the arrangement of land use patterns. A further study of retail, wholesale and service trades is also projected along with an investigation of the part that agriculture plays and is likely to play in the region's economy, especially on the outer fringes. An investigation of the role of women in the region's economy is also contemplated. The final part of this research program involves a study of planning development and public finance. Where the relation of both existing and proposed land use to tax income and to the sources and amounts of funds available to carry out planning projects and provide public service facilities will be made.

Relation to Local Planning Operations. From the outset, we have been convinced that local planning in order to free itself from the danger of being carried on in a vacuum, must be cognizant of both the physical and social

factors that bear in on the community from the outside. Consequently, our physical and social research has been designed as a background and guide for local communities in doing their more detailed and refined planning jobs. Probably our metropolitan research has been geared down to this lower community level more than would normally be expected, but this has been done for a deliberate purpose. In conjunction with the Michigan Chapter of the American Institute of Planners, several years ago we prepared a handbook for local planning research as a guide to city, village and township planning commissions. While this handbook has not had as wide a use as we hoped for as yet, those communities that have followed some of its suggestions have been able to do a more significant local planning job.

The local communities have made the greatest use of our current population estimates and projections by unit of government, our maps of physical data and our detailed land use surveys which have been geared down to the community level. These services, we feel, are of great value to local communities. We feel that they are essential for implementing our generalized regional plan.

Outreach and Implications. A governmental planning agency is usually limited in the amount of funds and personnel it can devote to research. But by persistently pursuing its path with the resources available, a regional planning agency can do a significant job. One of the by-products of this process is the uncovering of areas that need to be researched in depth, particularly in regard to core city and suburban relationships and both population and economic mobility. Suggestions have been made to graduate students and department heads of universities as well as to foundations for more extended research along these lines.

Our agency has also acted as the stimulator and goad to get other organizations to undertake specific research jobs. The idea and process of the recent $600,000 traffic survey developed out of our highway advisory committee. One member of our staff served two years on the traffic survey staff in a liaison capacity. We are now cooperating with the continuing Detroit area traffic study to tabulate detailed land use data on IBM cards. Our preliminary survey of water facilities and needs was a forerunner to a more advanced engineering study by the National Sanitation Foundation.

It is in the nature of things that a physical planning agency becomes both aware of and involved in other problems of government--organization, operations, outlook and perspective. While we do not conceive it to be the role of a regional planning agency to recommend modifications in governmental structure or operations, wherever our research and experience on the ground reveal such needs, we feel obligated to tell governmental citizens and the public about such situations.

The research arm of planning operations must be ever alert and active. Revision of comprehensive plans on the basis of changed economic and social situations is a constant process. The first duty of the researcher is to make his materials available on a sound basis and usable form to the planning division of the agency staff. A second, equally compelling obligation, is to see to it that his studies and findings get into the hands of the technical and lay people who put planning into operation on the ground.

CURRENT RESEARCH PROJECTS

1. POLITICAL AREAL FUNCTIONAL ORGANIZATION; WITH SPECIAL REFERENCE TO ST. CLOUD, MINNESOTA
Robert H. Brown
University of Chicago, Department of Geography, Research Paper No. 51; December 1957. $3.00.
No previous digest report.

Research Problem. "This study is basically an examination of political activities in terms of areas, functions, and organizations. In combination, the political organizations of the world produce a hierarchy of areas and functions. Corresponding areas and functions are to be found at each of several levels in a 'nested' hierarchical system. The entire arrangement may be examined geographically through the use of a number of principles of 'areal functional organization' recently stated by Philbrick (Allen K. Philbrick, "Principles of Areal Functional Organization in Regional Human Geography", Economic Geography, XXXIII (1957), 299-336). Empirically, the study is concentrated primarily upon political institutions of a governmental nature in St. Cloud, Minnesota."

Major Findings. "The present study demonstrates the practicability of applying Philbrick's general principles of areal-functional organization to the study of political activities. - - Political institutions at each successively higher level in the areal-functional hierarchy perform some functions directly for the next lower level and others indirectly for all lower levels. Areally the hierarchy is characterized by its 'nested' arrangement wherein each successively higher level contains within its boundaries two or more examples of the next lower level." (HMM)

2. THE SCRAP IRON AND STEEL INDUSTRY IN THE CHICAGO METROPOLITAN AREA - A STUDY IN WHOLESALING LAND USE
Gerald Gutenschwager
Department of Geography, The University of Chicago (Master's thesis under the direction of Harold M. Mayer) with cooperation of the Department of City Planning, City of Chicago
Previous digest report: November 1957, No. 31
This report has been completed and is available on inter-library loan, or microfilm copy may be purchased, from University of Chicago library. (HMM)

3. CHANGES IN URBAN OCCUPANCY OF FLOOD PLAINS IN THE UNITED STATES
Gilbert F. White, Wesley C. Calef, James W. Hudson, Harold M. Mayer, John R. Sheaffer, Donald Volk
Department of Geography, the University of Chicago, under grant from Resources for the Future
Previous digest report: November 1957, No. 28
Final report is nearing completion. To be published as: Department of Geography, University of Chicago, Research Paper No. 55. Will be available, summer 1958 from the Department. $4.00

4. THE CONCEPTS OF STANDARDS AND REQUIREMENTS IN PUBLIC SCHOOL PLANNING: A CASE STUDY IN COMMUNITY PLANNING METHOD
John W. Dyckman
Ph. D. dissertation, Program of Education and Research in Planning, The University of Chicago
Completed December 1957, 280 pp. ms. Available by interlibrary loan, or microfilm copy may be purchased, from University of Chicago library
No previous Digest report

Research Problem. "This is a study of planning method in the public decision sphere. It uses the case of public school planning to examine the formulation and application of 'standards' as an integral part of planning procedure. This study itself is a product of parts of the movement to make planning and public administration 'scientific' and 'objective'. It attempts to analyze planning method in the positivistic spirit which has contributed to the emphasis on measurement, and hence on standards in local planning, but it aims, in addition, at uncovering some of the unarticulated value judgments and irrational elements in present practice which have been obscured by uncritical development of this movement".

Major Findings. "The conclusion is not that the bureaucracy has imposed solutions against the will of the majority, but that it has disguised value judgments borrowed from a kind of cansensus as judgments of scientific 'fact'. --- The practice of building norms upon other existing norms, and of relying on the good practice of other professionals, which has been found so characteristic of public education, has been a major source of the short-cutting of full rationality. -- One outcome of the continuation of the process of deriving new standards almost wholly from existing standards embodying past value judgments is a tendency to lose sight of the original ends. In school planning this has shown up as a tendency to preoccupation with artifacts and instruments of programming as ends in themselves." (HMM)

5. PLANNING AND RENEWAL POLICIES, PLANS, PROJECTS
J. Marshall Miller assisted by five graduate students
Research underway. Questionnaires to selected cities in the U.S. and abroad, supplemented by reference to official and professional reports.
Conducted by Planning and Housing Division, School of Architecture, Columbia University.

Research Problem. To determine what agency or organization, public or private, or a combination, is charged with, or assumes the responsibility for proposing policies, plans, or projects for urban planning or replanning in a group of selected cities. To ascertain what patterns of organization are most effective.

Method of Study. Questionnaires mailed to planning officers in cities in Europe, North and South America. Information in three areas

being sought: 1) Planning policy and program for the city; 2) Planning policy and program for the urban region; 3) Policy and program for urban renewal and redevelopment. Related material is being summarized from available reports, national and international journals and U.N. publications. (JMM)

6. RESEARCH PLANNING FOR THE DEVELOPMENT OF A RIVER VALLEY
Joint Study by University of Illinois, University of Indiana, and Purdue University. Under general direction of Louis B. Wetmore and Joseph A. Russell
Previous digest report: November 1957, No. 37.

This study has been completed and published as three reports: Part I - The Plan for Research, Part II - The Plan for Research - Appendices, Examples, Part III - The Challenge of Opportunity. (WIG)

7. RELOCATION AND MENTAL HEALTH: ADAPTATION UNDER STRESS
Dr. Erich Lindemann, Harvard Medical School and Massachusetts General Hospital, and Dr. Gerald Caplan, Harvard School of Public Health, Co-principal Investigators; Dr. Marc Fried, Coordinator of Research.
The study planned for a five year period, was begun in December 1957. Plans for publication have not been made, but preliminary reports on the study may be issued from time to time.
The study is being conducted by the Center for Community Studies, an affiliate of Massachusetts General Hospital and Harvard Medical School, under a grant from the National Institute of Mental Health.

Research Problem. To study the social and psychological effects of relocation on the residents of a Boston slum area, (the West End) about to be cleared for redevelopment by private builders.

The study treats relocation as a potential crisis, and seeks to determine how people react to it; and how well (in psychiatric terms) they adapt to the loss of their neighborhood; and the success and form of adaptation to the new neighborhood.

The research will focus, first, on the characteristics of the residents, their functioning in the present community; and on the nature of the community itself, the attractions it has for its residents, and the satisfaction they have experienced there. When people have relocated themselves or have been relocated, follow-up, panel studies will be made where they have gone, and how they have adapted, either in maintaining present living patterns, social organizations, and psychological mechanisms, or in adapting to those of the community in which they now live.

Adaptation will be studied from several vantage points: in psychological and psychiatric terms, for the individual as a personality; and in sociological and anthropoligical terms for the individual as

a member of one or more social and cultural systems. The study will attempt to evaluate the basic issues involved in understanding mental illness and mental health, and to test a variety of hypotheses about psychological and social functioning of the residents of slum community.

Methods of Study. The study will use a variety of behavior science techniques:

1. A panel interview with a sample of the present population (and those already relocated): one set of interviews prior to relocation, and one or more sets of interviews subsequent to relocation. The initial interview will include questions on demographic characteristics, residential history, family and child-raising patterns, role of the community, philosophy of life, and personality. Some projective testing is also planned.

2. An analysis of the present population of the area who are or have been patients for psychiatric care at clinics and hospitals throughout the area, before and after relocation.

3. A 9 month participant observation study of the slum community. (reported on separately)

4. Special studies of the "caretakers" of the community, and intensive non-survey studies may be planned during the course of the research to complement the survey interview data.

Findings. No findings have yet been derived. However, the completed study should provide a variety of findings on the process of relocation and its social, economic, psychological and psychiatric effects on the residents of slum area. (HG)

8. A PARTICIPANT - OBSERVATION STUDY OF A SLUM COMMUNITY FACING REDEVELOPMENT
Herbert J. Gans
The study began in October 1957, and will be concluded in May 1958.
Plans for publication are undetermined.
The study is being conducted as a part of a larger study entitled "Relocation and Mental Health: Adaptation Under Stress," being undertaken by the Center for Community Studies, an affiliate of the Department of Psychiatry, Harvard Medical School and Massachusetts General Hospital, under a grant from the National Institute of Mental Health.

Research Problem. To describe the characteristics of the residents, and of the social and cultural system of the West End of Boston, an urban slum community facing clearance. The study also attempts to develop an overview into the structure of the community, the reasons people live in it, and the kinds of leadership which do and do not develop, the reactions of people to redevelopment and relocation, and the beginnings of the process of community disintegration. Moreover,

an attempt will be made to outline the ways in which the cultural patterns of the residents differ from the middle class consumption norms that predominate in America today.

Hypotheses. The West End is primarily a neighborhood of working class imigrants and second generation Italians, and the remainders of other ethnic groups who have used the neighborhood as an area of first and second settlement. Research has focussed on the Italian social system. This may be described as one in which the peasant extended family system has been transformed into a set of peer groups, made up of family members, neighbors and friends, within which most of the non-economic functions of the residents are being filled. The activities which people pursue, and the status which they strive for is defined on the basis of behavior within these groups, and depends little on individual achievement. In a period of prosperity, people choose those aspects of middle class consumption norms which allow them to maximize the comfort of the highly active, peer group - centered social life, e.g., modern kitchens and furnishings, automobiles, and clothes.

Since status is defined by achievement within these groups rather than by the more individual achievement of a suburban house, most people would like to remain in their five story tenements, and benefit from low rents and central location. This is true especially if the condition of their building is such as to allow them to keep up their apartments to the desired level. Most people, having social and housing standards that differ from those adopted by federal and city housing agencies, do not describe their neighborhood as deteriorated, except for portions in rooming house use, and occupied by single men, alcoholics and others of bottom status in our society.

Although some of the younger families have left for the suburbs in order to provide a higher status environment for their children, the adults in the area (and some of the child-centered suburbanites) are part of an extensive social network, which they will miss when they have to leave the area. Relocation procedures, based on middle class assumptions of the self-sufficiency of the nuclear family, and the status-related qualities of housing, will break up the social system of the community when individual households are dispersed all over the metropolitan area. Considerable hostility towards the redevelopment exists, but was never properly organized, due to a variety of causes. The residents feel that redevelopment is an excuse to give their neighborhood to a profit-seeking private redeveloper (the area is being redeveloped with luxury housing) and explain the act as one in a series of deprivations being heaped on them by a hostile city government.

Method of Study. The researcher is living in the neighborhood; and collecting data while using the area's facilities, talking with storeowners and neighbors, attending meetings and other events, making friends with some of the residents, and conducting interviews with local functionaries such as organization officers, settlement house workers, politicians, priests and the like. (HG)

9. STUDY OF ECONOMIC IMPACT OF MASSACHUSETTS ROUTE 128

Transportation Engineering Division of the Civil and Sanitary Engineering Department of the Massachusetts Institute of Technology, Professor A.J. Bone, Supervisor.

Two preliminary reports prepared for limited distribution:

"Economic Impact Study of Massachusetts Route 128--Outline of Methods and Procedures," presented at the Annual Meeting of the American Association of State Highway Officials, November 1957.

"Economic Impact Study of Massachusetts--Industrial Development Survey," presented at the Annual Meeting of the Highway Research Board, January 1958.

Final report due in October 1958.

Conducted under joint sponsorship of the Commonwealth of Massachusetts Department of Public Works and the U.S. Bureau of Public Roads.

Previous Digest Report: May 1957, No. 14.

Research Problem. The purpose is to survey and evaluate the industrial and residential developments which have taken place along newly constructed sections of Route 128, to investigate extent to which the highway has been responsible for these developments, and to determine the effect of these developments on highway traffic patterns.

Method of Study. A survey was made by personal interview of industrial establishments to determine information on capital investment in plant, type of operation, factors considered in choosing a site on Route 128, other sites considered and benefits (or disadvantages) expected or realized by virtue of location on Route 128.

A questionnaire was circulated to employees to determine their place of residence, method of travel to work, distance traveled, commuting time, and use made of Route 128. Traffic checks were also made at certain industry parking lots at the beginning and end of day shift of employees. An origin and destination survey taken by Massachusetts Department of Public Works at ramp exits on Route 128 is being analyzed.

The effect of Route 128 on residential land values was investigated by studying changes in land use, trends in assessments, property sales, repeat sales and new building permits since 1945 in two typical communities on the Highway.

Major Findings. Findings released so far are summarized in the second of the reports mentioned above ("Economic Impact Study of Massachusetts Route 128--Industrial Development Survey"). Reasons for industries locating on Route 128 have been evaluated to reveal benefits received. Travel patterns have been developed for employees in one industrial unit, the New England Industrial Center. Distance and time distributions are given together with percentage usage of Route 128. The final report will include similar information for seven industrial location groups along the 50-mile length of highway considered in the study. (AJB)

10. ROLE OF THE PLANNER

John A. Parker, Peter H. Nash, Frederic N. Cleaveland

The research is in its early stages. A pilot study has been completed on the planner's perception of his role, three case studies are under way. A questionnaire for national distribution is being prepared. Publication is anticipated by 1961.

Urban Studies Committee, Institute for Research in Social Science, University of North Carolina, Chapel Hill, N. C.

No previous Digest Report

Research Problem. The objective of urban planning is to acheive more attractive and efficient cities. A key figure in this effort is the urban planner. In recent years, as the planning function has moved closer to the core of the governmental structure, his responsibilities have become increasingly complex. In contrast to the early planners, whose major concern was plan preparation, the director of an urban planning agency today finds himself involved in a network of continuing governmental procedures, in which research, plan preparation, and systematic plan revision are but the beginnings of action designed to translate plans into desired patterns of city development. In this process he is concerned with a wide variety of fields, including architecture, municipal engineering, community organization, industrial development, land economics, land planning, law, municipal government and finance, public administration, and traffic and transportation. He must know how to employ modern techniques of communication, how to organize research undertakings, and how to interpret and use the results of social and economic research and analysis. In addition, he knows that his agency is the one branch of government that is concerned with creating a more beautiful city. He is, or should be, playing a major role in achieving an urban environment that is visually attractive.

It is evident that the pressures and demands upon the urban planner are heavy, and there is every indication that they will become more so. The success of existing local planning programs, as well as of the frontal attack upon urban blight as envisioned in the Housing Act of 1954, is largely dependent on him. We need to know more about him and about this dynamic planning process in which he plays a principal part. More specifically, we need to find out about his background and motivation, his concept of his responsibilities, what his manager, mayor, council and planning board expect of him, and how educational institutions can most effectively prepare him for his job. These are the questions we expect to examine in this study.

Method of Study. Library research, personal interviews, mailed questionnaires and case studies represent the major research methods used in this study. Library materials currently being investigated include planning literature, literature on the concept of role and role analysis, and literature describing methods used by other professions in examining the experience and emerging responsibilities of their practitioners, and to relate their findings to educational programs. Personal interviews are being used to investigate role

perceptions and role expectations of planners, and perceptions of officials and citizens in the community regarding the planner's role. Statistical data will be assembled by means of a mailed questionnaire to members of the planning profession. In addition to the above, case studies of the role of the planners are being conducted in cities selected to represent the following variables: city size, rate of growth, type of government, type of planning organization, and regional location.

11. PEOPLE JOBS AND LAND 1955-1975
IN THE NEW JERSEY-NEW YORK-CONNECTICUT METROPOLITAN REGION
Regional Plan Association, Inc.
Henry Fagin, Stanley B. Tankel, David Malamud
Research report published in June 1957 by the Regional Plan Association, Inc., 205 E. 42nd Street, New York 17, New York. Available at $15.00 per copy; 70 pp. in 2 colors; 5-color land use map fold-in.

Research Problem. To forecast population, employment and land development from 1955 to 1975 for the aggregate of the 22-counties in the region and for each county.

Method of Study. Conventional techniques such as regional-share-of-national and analysis of population change components were employed. However, two other methods were attempted which may be of special interest: using linkage to resident population as a basis for distributing the employment aggregate; using a ring analysis which includes household size, accessibility, land availability, sub-soil and other factors as a basis for distributing the population aggregate. (SBT)

12. DYNAMICS OF URBANIZATION AS EXPRESSED IN THE PHYSICAL COMMUNITY
Approximately one third complete, publication ultimately contemplated in applicable journals or in book form
Being conducted by Myer R. Wolfe under an initial and continuation grant from the Graduate School, University of Washington. (Dean and Research Committee)

Research Problem. Analysis of the spatial arrangement and perceptual forms of the small (as defined) community in a homogeneous region. - Puget Sound area.

Hypotheses. In addition to natural features, more intangible social, economic, and political forces have greatly shaped communities in a "Last Frontier" area during a 100 year period of growth.

Method of Study. Case study techniques. Several screenings of preselected towns by way of aerial photographs, surveys of physical features (land use, townscape features), study of historical determinants, etc., with view of documenting representative types and examples.

Major Findings Expected. Exploration of the town as an entity. While emphasis is on the plan arrangement and three dimensional rela-

tionships and features left as result of dynamic era, by products are in the vein of historical and regional documentation. (MRW)

13. ECONOMIC IMPACT OF URBAN FREEWAY SYSTEMS
E. M. Horwood, Ronald Boyce, Lillian Randolph
Work in progress as contract research sponsored jointly by the Bureau of Public Roads and the Washington Highway Commission, as part of the Federal Highway Cost Allocation Study.

Research Problem. (Partial Statement) What are the requirements of the central focus of an urban freeway system? What functions may be expected to remain in the central business districts after economic adjustments and relocations have been facilitated by better transportation? Will the urban freeway systems satisfactorily accomodate the new functional patterns of land use which will develop?

Previous Relevant Research. Industrial and commercial location trends have been studies in considerable detail. There is a dearth of information, however, on changes in other categories of space as well as the central requirements of non commercial and industrial functions.

Method of Study. "Profile" studies are being conducted to determine locational trends, central requirements, and future prospects of five major activities. The attempt is being made to determine gross movements by activity, rather than by city. The activities include banking, insurance, utilities, government and medical-dental services. A study of undifferentiated central office space is being made for scale effect. Finally, an attempt will be made to link changes in the location of these activities to the transportation network. The study methodology is based on questionnaires and data obtained from business directories. The time span of the historical analysis is 1946-1956.

Major Findings. Three of the profile studies have been completed. The banking functions remain strongly central. Office space for utilities has not decentralized significantly. Of the insurance companies studies 41 percent have moved out of the central core or are making definite plans to move outward.

Report planned for September 1958. (EMH)

14. AMERICAN COMMODITY FLOW: A GEOGRAPHICAL INTERPRETATION OF RAIL AND WATER TRAFFIC BASED ON PRINCIPLES OF SPATIAL INTERCHANGE
Edward L. Ullman
Published, University of Washington Press, Seattle, 1957, pp. xxii + 215, bibliography, index, maps. $4.00.

Research Problem. To discover and explain the commodity flow pattern of the United States and to formulate some general principles of spatial interchange.

Method of Study. Primarily quantitative mapping of commodity flows involving: maps for 20 representative states showing origin and destination of rail traffic according to a five or seven commodity breakdown based on ICC 1% sample waybill data for 1950; 2) traffic flow map for American and Canadian Railroads based on Copeland data and similar maps for inland waterway, coastwise and foreign trade based on Corps of Engineers and U.S. Maritime Commission data plus origin and destination maps by five coastal districts for coastal traffic, and, three other maps for location of principal railroad yards, home offices and traffic offices of U.S. railroads and various other maps for specific commodity, rate, and industrial distributions.

Major Findings. 1) Traffic flow of the U.S. focuses remarkably on the industrial belt, (an area extending from about Milwaukee to Boston and from St. Louis to Baltimore, about 7% of the U.S. area with 68% of the industrial employment) 2) State rail traffic is always heavy within a state and between its adjacent neighbors, but significant, highly localized long haul traffic also occurs. 3) As a basis for explanation a three factor system of 1) complementarity (based on areal differences) intervening complementarity (or opportunity) and transferability (or distance measured in cost and time) is proposed.

Related Work. "The Role of Transportation and the Bases for Interaction," by Edward L. Ullman published in Man's Role in Changing the Face of the Earth (Wm L. Thomas, ed., University of Chicago Press, 1956), pp. 862-80. (WLG)

15. AN AGGREGATION ANALYSIS OF ARTERIAL BUSINESS

Brian J. L. Berry

Department of Geography, University of Washington. Research as part of Urban Road Impact Studies of the Bureau of Public Roads being conducted at the University of Washington. (Under the general direction of W. L. Garrison).

No previous digest report.

Research Problem. To test hypotheses and analyze the structure of business associations and location habits along major urban arterials. Previous relevant research includes the study of Shopping Centers and the Geography of Urban Areas by Berry in Spokane. This project extends the above study in the same study area, Spokane, Washington. Modern methods of aggregation analysis are used to the full, including measures of generalized distance, factor analysis, linkage analysis, and discriminant functions, in conjunction with high speed data processing machinery. Information is being produced relating to associations of business types, the implications of these for the locational differentiation of arterial business, and the relationships of differential associations to other characteristics of the arterials and surrounding areas. (WLG)

16. INTRA-CITY MOVEMENTS OF PERSONS - AN EMPIRICAL INVESTIGATION

Duane F. Marble
Department of Geography, University of Washington. Research as part of Urban Road Impact Studies of the Bureau of Public Roads being conducted at the University of Washington. (Under the general direction of W. L. Garrison).

No previous digest report.

Research Problem. One main feature of the urban circulation pattern is the series of recurrent home-based movements - the journey to work, for shopping, etc. - that are made by every family in order to obtain the necessities of existence. These recurrent movements of persons have not been the subject of detailed study by transportation geographers in the past. Studies by highway engineers and other persons have provided only superficial information as to the factors underlying these movements. In most studies all persons are treated as belonging to one large group having fairly homogeneous travel patterns. This grouping has been necessary because of the difficulty of obtaining the necessary detailed movement information.

Hypothesis. That different groups of persons exhibit different travel patterns (i.e., a different mix of trip purposes, trip frequencies, and trip lengths). The ways in which variations in family characteristics (e.g., income level) are associated with variations in the travel patterns are examined by standard techniques of statistical inference.

Data. The data for the study consist of travel information on all trips made in a 30 day period by all members of some 200 families in a city in the American Mid-West. Information on family characteristics was also collected. These data were made available through the cooperation of a private research organization, the Traffic Audit Bureau, Inc.

17. TRANSPORTATION AND THE UTILIZATION OF MEDICAL SERVICES

Richard L. Morrill
Department of Geography, University of Washington. Research as part of Urban Road Impact Studies of the Bureau of Public Roads being conducted at the University of Washington. (Under the general direction of W. L. Garrison).

No previous digest report.

Research Problem. The impact of highways on urban business structure and supply areas is studies through an example industry, medical services.

Major Hypotheses. Location and size of transportation routes are a function of the arrangement of urban centers and the reverse is also true. This general assertion may be made operational by comparing the structure of individual industries with their use of transportation. The present study uses medical services as a case industry.

Related Research. There have been many important empirical studies of the distribution of medical services. A valuable theoretical reference has been W. D. Fisher's, "Economic Aggregation as a Minimum Distance Problem," "Econometrica, 25 (1957), p. 383. (WLG)

18. SHOPPING CENTERS AND THE GEOGRAPHY OF URBAN AREAS
Brian J. L. Berry (under the direction of W. L. Garrison)
A Theoretical and Empirical Study of the Spatial Structure of Intra-urban Retail and Service Business.
Conducted in the Department of Geography, University of Washington, as a Ph. D. thesis, with a grant from the Western Data Processing Center of the University of California, Los Angeles, and undertaken as part of the Urban Road Impact Studies of the Bureau of Public Roads at the University of Washington.

Research Problem. To analyze one aspect of urban land use, namely retail and service business, at both theoretical and empirical levels. Theoretically the problem was one of integrating current statements concerning land use and land value with the theory of tertiary activity developed from central place theory. At the empirical level the problem was one of testing hypotheses concerning spatial patterns and associations of retail and service business within the city.

Previous Relevant Research. Previous studies are many, including work with problems and theories of urban land use and value from Haig through Hoyt and Ratcliff to Kelley, and with theories of tertiary activity from Christaller and Lösch to Berry and Garrison. Much previous empirical work is evident, including that of Rolph, Proudfoot, McKenzie, Mayer, and Merry.

Hypotheses Tested. The major hypotheses tested included the assertions from Ratcliff of nucleated and string-street patterns of business, and the hierarchically structured notions from the theory of tertiary activity and from assertions of city planning of neighborhood and community levels in provision of good and services to consuming populations.

Method of Study. Quantitative techniques of correlation and linkage analysis were applied making full use of high speed digital computers. Data consisted of an inventory of 49 types of business present in the 285 business centers outside the central business district of the city of Spokane, Washington. The research design was intended to measure and identify groups of spatially-associated business types and to evaluate the role of the associated groups of businesses in creating patterns and hierarchies of business centers.

Major Findings. Several major findings of the research are outlined as follows.

1) There are two overall conformations of associated business types, the 'nucleated shopping' conformation and the 'supplies-repair-arterial' conformation. Each of these conformations comprises four hierarchically

Research Problem. Empirical results of about 40 studies of the impact of changed highway facilities on urban communities are arranged in a comparable manner. (WLG)

21. WASHINGTON HIGHWAY IMPACT STUDIES
R. G. Hennes, B. O. Wheeler, W. L. Garrison
Published in Bulletin 169, Developing Concepts of Land Acquisition, Highway Research Board (National Research Council-National Academy of Sciences), 1958.
No previous digest report.

Research Problem. Measurement of relationships between land values and road service, all other things being equal. The problem was motivated by a general inquiry into the distribution of responsibility for road and street costs.

Method of Study. Land value was viewed as the outcome of competitive bidding for locations, subject to restraints of zoning, demand, etc. Land values were measured using sales data and regression techniques were used to compare these values with road location and other variables.

Major Findings. Empirical findings are presented for suburban and rural areas and for several types of land use. (WLG)

22. ANALYSIS OF HIGHWAY NETWORKS: A LINEAR PROGRAMMING FORMULATION
W. L. Garrison and D. F. Marble
Forthcoming in the Proceedings, Highway Research Board (National Research Council - National Academy of Sciences), 1958.
Previous digest report: Item 47, Vol. 4, November 1957.

Research Problem. Statement of the problem of efficient development of the Interstate Highway System.

Hypotheses. Minimization of joint costs of transportation and investment subject to restraints that demands for transportation be met provides an efficient development of a highway system.

Method of Study. The problem was stated as a linear programming problem. The primal was to minimize the joint cost of investment and transportation in a less than completely connected network, subject to certain restraints. The dual had reference to site and transportation route rents.

Major Findings. The paper emphasizes data needed to operate the model and geographic, economic, and planning consequences of highway developments. (WLG)

SUBJECT INDEX (continued)

# RESEARCH

# DIGEST

Sponsored by the
Urban Planning Research Group





Vol. 5, No. 2 November 1958

Prepared and distributed by
Department of City Planning and Landscape Architecture
University of Illinois
Urbana, Illinois

William I. Goodman, Editor

Contents

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## EDITOR'S NOTES

### Editorial Board

Donald L. Foley of the University of California and William L. C. Wheaton of the Institute for Urban Studies, University of Pennsylvania, were elected to the Board to succeed Harvey Perloff and Professor Martin Meyerson, whose term expired in July.

### Contributions From Research Correspondents

During the five years that the Digest has been published there has been a steady decrease in the number of project statements submitted for listing. Several institutions active at the outset no longer participate. On the other hand, new participants, particularly public planning agencies, have in part offset the decrease. The Editor is concerned with the future policies to be pursued by the Digest and would like an expression from subscribers as to the following possible courses of action:

1. Continue present procedures as long as any reasonably-sized document can be put together.

2. Transfer the place of publication to another source on the theory that three years (at the Univ. of Ill.) is the maximum period for vigorous activity at any one institution.

3. Combine the Research Digest, in a reduced format, with the AIP Journal.

4. Discontinue the Digest until evidence indicates that a widespread desire exists and that contributions will be sharply augmented.

William L. Goodman, Editor
Urbana, Illinois

1. NEW HOUSING FOR NEGROES: RECENT EXPERIENCE
William Goldner
Research Report 12, published 1958 by the Real Estate Research Program, Bureau of Business and Economic Research, University of California, Berkeley. Price $1.00. Analysis prepared originally as a research report to the Commission on Race and Housing, an independent commission operating under a grant from The Fund for The Republic, Inc.

Previous Digest report: none

Research Problem. To determine in part the nature of the demand for new housing among Negores, to document the range of experience that subdividers and developers have had with problems of credit and financing of new homes sold to Negroes, and to evaluate the importance of site characteristics, land planning, and location on the salability of new housing to nonwhites.

Method of Study. Approximately 70 sales subdivisions and rental developments, comprising almost 20,000 dwelling units, were chosen to exemplify the variety of problems that arise in the actual construction, financing, marketing, and servicing of housing available to Negroes. For each project, comparable data were obtained on (1) identifying characteristics of the development; (2) characteristics under control of developers and lenders; (3) characteristics of the community and locational setting; and (4) characteristics and factors under the control of the occupants. Respondents also gave an over-all judgmental rating of "successful" or "unsuccessful" to each project.

Major Findings. It was apparent that no single factor can assure the success of a housing development for Negroes and that some factors are not within the control of the developer. However, many of the highly important items were found to be within the control and subject to the decisions of the developer. Among such characteristics are the locational, spatial, and site characteristics of the subdivision or rental development. Availability of adequate site amenities rated as an essential factor. Convenient public transportation, community facilities including schools, shopping centers, shurches, parks, and playgrounds were all found to be necessary conditions for success. Such land improvements as drainage systems and paved streets weighed heavily as factors. The nearness of undesirable land uses was a substantial handicap to success, but there was some evidence that a constructive effort to offset the adverse influences can be effective in making the location acceptable. Greater degrees of success were also associated with certain characteristics of the housing, its price, and financing. For example, such factors as large floor areas and the acceptability of higher sales prices suggested that the Negro housing market is not exclusively minimum standard and satisfied with low prices, simple structures, and second rate locations. It is

[illegible] William [illegible]

[illegible] Research Report No. [illegible] prepared [illegible] for the Real Estate Research Program, School of Business and Public Administration, University of California, Berkeley. Prepared originally as a research report to the Committee on Real Estate [illegible], as independent consultant [illegible] working under a grant from the Ford Foundation, Inc.

Previous [illegible] report: None

Research Problem. To determine in part the nature of the demand for new housing among Negroes, to document the range of experience that subdividers and developers have had with problems of credit and financing of new homes sold to Negroes, and to evaluate the importance of site characteristics, land planning, and location on the acceptability of new housing to nonwhites.

Method of Study. Approximately 70 sales-subdivisions and renewal developments, comprising almost 25,000 dwelling units, were chosen to exemplify the variety of problems that arise in the actual construction, financing, marketing, and servicing of housing available to Negroes. For each project, comparable data were obtained on (1) identifying characteristics of the development; (2) characteristics under control of developers and lenders; (3) characteristics of the community and locational setting; and (4) characteristics and factors under the control of the occupants. Respondents also gave an over-all judgment regarding "successful" or "unsuccessful" to each project.

Major Findings. It was apparent that no single factor can assure the success of a housing development for Negroes and that some factors are not within the control of the developer. However, many of the highly important items were found to be within the control and subject to the decisions of the developer. Among such characteristics are the location, zoning, and other characteristics of the subdivision or rental development. Availability of adequate amenities rated as essential were: convenient public transportation, community facilities including schools, shopping centers, churches, parks, and playgrounds were all found to be necessary conditions for success. Such land improvements as drainage systems and paved streets were highly as factors. The presence of undesirable land uses was a substantial hindrance to success, but there was some evidence that a cooperative effort to offset the adverse influences can be effective in making the location acceptable. Greater degrees of success were also associated with certain characteristics of the housing, its price, and its marketing. For example, such features as large floor areas and the acceptability of higher sales price suggested that the Negro housing market is not exclusively minimum standard and satisfied with low-priced, simple structures, and cannot rate locations. It is.

significant that the ideal Negro subdivision embodied features associated with successful subdivisions built for the non-Negro housing market, the archetype being identical with the typical modest-priced middle class home development.

Conversely, characteristics of subdivisions considered less than successful were isolated locations, often without city services, shopping centers, public transportation, or other amenities. Factors contributing to the lack of success included lack of site planning, small lots and buildings, poor drainage, and proximity to adverse influences. Also associated with less successful developments were low prices and no-down-payment financing, augmented by delinquencies in payments, a few foreclosures, and maintenance problems. Such projects attracted low income families from the lower socio-economic strata. (MB)

2. SURVEY OF VACANT LAND WITHIN THE CORPORATE LIMITS OF CHICAGO
Chicago Department of City Planning, Research Division.
Expected Completion Date, December, 1958

Research Problem. The survey objectives are to indicate how much land within the city limits is still vacant, to determine the size of areas vacant by size groupings and the zoned use, and to relate the findings of the survey to urban renewal and planning problems.

Methods of Study. Use of Sanborn maps and one hundred percent field survey. (HS)

3. A STUDY OF THE MOVEMENT OF INDUSTRY WITHIN THE METROPOLITAN AREA OF CHICAGO
Chicago Department of City Planning
Expected Completion Date, December, 1958

Research Problem. The objective is to determine the number and size of industrial change and to assess its consequences upon the economic future of the City.

Methods of Study. The industrial records of the Commonwealth Edison Company Territorial Service and the records of the Association of Commerce and Industry are being utilized in outlining the pattern of movement of industry. (HS)

4. A STATISTICAL AND ANALYTICAL SUMMARY OF ALL NON-RESIDENTIAL CONSTRUCTION FOR THE CITY OF CHICAGO FROM 1953 TO THE PRESENT
Chicago Department of City Planning, Research Division
Expected Completion Date, December, 1958

Research Problem. The object of the summary is to determine the extent of non-residential construction, where that construction is taking place, and the effect it has or will have upon the development of the city.

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Research Problem. The survey objectives are to indicate how much land within the city limits is still vacant; to determine the rate of areas added by city growth and the actual use, and to relate the findings of the survey to urban renewal and planning problems.

Methods of Study. [illegible] maps and one hundred percent land survey. (53)

3. A STUDY OF THE MOVEMENT OF INDUSTRY WITHIN THE METROPOLITAN AREA OF CHICAGO
Chicago Department of City Planning
Expected Completion Date, September, 1959

Research Problem. The objective is to determine the number and nature of industrial change and to assess the consequences upon the economic future of the city.

Methods of Study. The industrial records of the Commonwealth Edison Company Territorial Service and the Research Division of Commerce and Industry are being utilized in outlining the patterns of movement of industry. (54)

4. A STATISTICAL AND ANALYTICAL SUMMARY OF ALL NON-RESIDENTIAL CONSTRUCTION FOR THE CITY OF CHICAGO FROM 1953 TO THE PRESENT
Chicago Department of City Planning, Research Division
Expected Completion Date, December, 1958

Research Problem. The object of the summary is to determine the amount of non-residential construction, where that construction is taking place, and the effect it has or will have upon the development of the city:

Methods of Study. The records of the Building Department's Permit files are being utilized for abstracting the following information: (1) type of construction; (2) area location; (3) work code; (4) address of building; (5) name of owner; (6) address of owner; (7) use of building; (8) number of stores; (9) square footage; (10) construction costs; (11) industrial classification. (HS)

5. URBAN GEOGRAPHY AND THE AMERICAN CITY
Raymond E. Murphy
Writing in progress. Hope to have book completed by fall of 1959.
Graduate School of Geography, Clark University.
Previous Digest report: No. 33, Vol. 4, No. 2.

Research Problem. An attempt to organize the material of a rapidly growing field, urban geography, along systematic lines.

Method of Study. The approach is predominantly functional. The field is outlined along systematic lines, and then for each topic there is a discussion and evaluation of the research that has been done and the techniques and methods used. Emphasis is upon research approaches leading to generalizations regarding the American city. Includes a bibliographic summing up of the literature for each of the various aspects of the field. (REM)

6. INTRAURBAN VARIATION OF RESIDENTIAL QUALITY
Roland J. Fuchs (under the direction of Dr. Raymond E. Murphy)
Doctoral dissertation, June 1959, submitted as of July, 1958. Also available on microfilm from University of Michigan.
Clark University, School of Geography

Research Problem. Cities have been observed to differ in the degree of internal or intraurban variation in residential quality. This study was concerned with measuring the degree of intraurban variation in residential quality, noting if differences in this characteristic from city to city had any regional pattern, and determining if these differences could be accounted for in terms of differences in urban population, social and economic characteristics.

Method of Study. Census data for 209 United States cities were analyzed. Monthly rent was utilized as an indicator of quality, and the coefficient of variation computed as a measure of intraurban variation of quality. Correlation analysis was employed to see if the coefficients were related to a variety of urban characteristics.

Major Findings. Cities were found to differ significantly in the degree of intraurban variation of quality. Regionalization of differences was evident with cities of the Southeast and New England being most varied and cities of the West and the Great Lakes area the least varied. Significant association was found with a number of urban characteristics. Most significant was a moderately-high, direct association with percent of low income families and a moderate negative association with the percent of dwelling units owner-occupied. (REM)

Methods of Study. The records of the Building Department's Permit Files are being utilized for abstracting the following information: (1) type of construction; (2) area location; (3) work code; (4) address of building; (5) name of owner; (6) address of owner; (7) use of building; (8) number of stories; (9) square footage; (10) construction cost; (11) industrial classification. (MS)

5. URBAN GEOGRAPHY AND THE AMERICAN CITY.
Raymond E. Murphy
Writing in progress. Hope to have book completed by spring of 1959.
Graduate School of Geography, Clark University.
Previous Digest report: No. 25, Vol. 4, No. 2.

Research Problem. An attempt to organize the material of a rapidly growing field, urban geography, along systematic lines.

Method of Study. The approach is predominantly traditional. The field is outlined along systematic lines, and then for each topic there is a discussion and evaluation of the research that has been done and the techniques and methods used. Emphasis is upon research approaches leading to generalizations regarding the American city. Includes a bibliography summing up the literature for each of the various aspects of the field. (MSH)

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7. THE ECONOMIC AND SOCIAL EFFECTS OF THE CONNECTICUT TURNPIKE ON EASTERN CONNECTICUT

Walter C. McKain, Jr., Albert Chevan, Robert A. Burnight, Gontran Lamberty, Ralph R. Nichols

A five year project. First progress report published June, 1958, yearly reports will follow. First report available from Storrs Agricultural Experiment Station, University of Connecticut.

Project conducted by Department of Rural Sociology, College of Agriculture, University of Connecticut in cooperation with the Connecticut State Highway Department and the Bureau of Public Roads, U. S. Department of Commerce, Washington, D. C.

Research Problem. To determine the impact of a major express artery on six sectors of the economy of the area traversed.

Previous Relevant Research. Studies of the effect on property values of new expressways in California, Massachusetts and Texas.

Hypotheses. Forty-four hypotheses are advanced, relating to possible changes in manufacturing, recreation, retail sales, property values, local government and services and agriculture.

Method of Study. By field surveys each year. Analyses by controlled comparisons on time dimension basis and by geographic areas.

Major Findings. None to date. (WCM)

8. STUDY OF HOUSING NEEDS OF THE AGED

Professor Glenn H. Beyer, Project Director; Professor Alexander Kira, Assistant Project Director; Cornell University, Department of Housing and Design and The Housing Research Center. Sponsored by C. U. Agricultural Experiment Station and The Ford Foundation.

No previous degest report.

Research Problem. To collect detailed basic data on the housing needs and requirements of the aged population. Information is needed on their activity and leisure patterns and their general attitudes toward types of housing accommodations, site location and environmental factors, neighborhood, community facilities, etc. The information must also distinguish between the needs of the physically able and the infirm, the needs of the different sexes, the needs of those living alone versus those living with a spouse, the changes in need which occur with increasing age and similar factors. Information is also needed on the various economic aspects of home ownership, household maintenance, etc.

Previous Relevant Research. Much of the fundamental groundwork for this study was done in two related studies which were completed at Cornell University in the summer of 1958. One of these studies compiled, reviewed, and abstracted the bulk of the existing literature on housing for the aged. The other project, a special study sponsored by the

7. THE ECONOMIC AND SOCIAL EFFECTS OF THE CITIES' LOCAL SPENDING IN EASTERN CONNECTICUT

Walter C. McKain, Jr., Administrator, Robert A. Lancaster, Director
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Project conducted by Department of Rural Sociology, College of Agriculture, University of Connecticut in cooperation with the Connecticut State Highway Department and the Bureau of Public Roads, U. S. Department of Commerce, Washington, D. C.

Research Problem. To determine the impact of a major expressed highway on all sectors of the economy of the area traversed.

Previous Relevant Research. Studies of the effect on property values of new expressways in California, Massachusetts and Texas.

Hypotheses. Forty-four hypotheses are advanced, relating to possible changes in manufacturing, recreation, retail sales, property values, local government and services and agriculture.

Method of Study. By field surveys each year. Analyses by controlled comparisons of time distribution beats and by geographic areas.

Pilot Phase. Have to date. (WCM)

8. STUDY CONDUCTED MADE OF THE AGED

Professor Glenn E. Dyer, Project Director; Professor A. Lawrence Kite, Assistant Project Director, Cornell University, Department of Housing and Design and The Housing Research Center. Sponsored by U. S. Agricultural Experiment Station and The Ford Foundation. Preliminary report.

Research Problem. To collect detailed basic data on the housing needs and requirements of the aged population. Information is needed on their activity and leisure patterns and their general attitudes toward types of housing accommodations, safe location and physical factors, neighborhood, community facilities, etc. Interpretation will also distinguish between the needs of the physically healthy and the infirm, the needs of the different sexes, the needs of married couples versus those living with a spouse. The changes in need with age, increasing age and aging factors. Influence of design needs of the various economic aspects of home ownership, household maintenance, etc.

Previous Relevant Research. Much of the fundamental groundwork for this study was done in two related studies which were completed at Cornell University in the summer of 1956. One of these studies concerned reviews, and analyses of the literature of the existing literature on housing for the aged. The other concerned a special study sponsored by the

New York State Division of Housing, reviewed and analyzed the existing literature relating to design and planning standards for housing for the aged. The results of both of these studies were utilized in formulating the problems and the methodology of the present study.

Method of Study. The basic information is being collected by the field survey method. A total of approximately four thousand families in the age group 65 and over will be interviewed; 3000 in both rural and metropolitan areas of upper New York State, 750 families in the Chicago metropolitan area and 750 families in the St. Louis metropolitan area. In addition, a special sample of 250 families, comprised of persons living in specially designed apartments for the aged in various public housing projects in New York City, has been interviewed. It is expected that a limited number of intensive case studies will also be undertaken to develop further supplemental information which cannot be obtained from the survey method.

Completion Date. Three year study to be completed late in 1961. (GHB)

9. HOME BUYING AND FINANCING TRENDS IN SELECTED URBAN AREAS OF NEW YORK STATE
Professor Glenn H. Beyer, Department of Housing and Design, and The Housing Research Center. Sponsored with New York State funds from the College of Home Economics.
Research report published in 1957. "Cornell Home Buying Study" available from Mailing Room, Stone Hall, Cornell University, 25 cents.

Research Problem. There is a scarcity of data concerning the purchase arrangements, type of house, and characteristics of the family regarding both new and old house purchases. Data available do not permit the development of information on such subjects as the average income of families buying new or old homes, the occupation of family heads, the age of family heads, the square foot size of the dwellings, the amount of down payment required, the period of amortization, not to mention such information as the ratios of selling price to income or average monthly payments.

Method of Study. Some thirty lending institutions in approximately fifteen upstate communities report data concerning each loan they close for a single family dwelling unit, on either a new or existing house, by mail, to the Housing Research Center.

Major Findings. Detailed information is available concerning the size and price of houses being purchased, the nature of the families buying, and the nature of the financing arrangements. For example, during 1957 the median price for new houses was $15,800 and for old, $12,600. For mutual savings banks the median selling prices were new houses $16,500 and existing houses $13,000. For savings and loan associations, new houses $16,280, existing houses $11,000. For commercial banks, new houses $14,000, existing houses $14,150. The median down payments were appreciably higher for conventional mortgages

New York State Division of Housing, reviewed and analyzed the existing literature relating to design and planning standards for housing for the aged. The results of both of these studies were utilized in formulating the problems and the methodology of the [illegible]

Method of Study. The basic information is being collected by [illegible] field survey method. A total of approximately four thousand families in the age group 65 and over will be interviewed; 3000 in rural and metropolitan areas of upper New York State, 750 families in the Chicago metropolitan area and 750 families in the St. Louis metropolitan area. In addition, a special sample of 250 families, composed of persons living in specially designed apartments for the aged in various public housing projects in New York City, has been interviewed. It is expected that a limited number of intensive case studies will also be undertaken to develop further supplementary information which cannot be obtained from the survey method.

Completion Date. Three year study to be completed date in 1961. (DRE)

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than for government supported mortgages. For example, for conventional mortgages the median down payment for new houses was $5,000 and for existing houses $4,400. For houses having VA-guaranteed mortgages the median down payment on new houses was $2,000 and on existing houses $3,100. For houses having FHA-insured mortgages, the median down payment for new houses was $3,200 and for existing houses $2,700.

Approximately 53% of the families buying new houses and 30% of those buying old ones had a ratio of selling price to income of 2.5 or higher.

Completion Date. This is an on-going study. (GHB)

10. ANALYSIS OF INTERCOUNTY COMMUTING OF WORKERS IN GEORGIA
John L. Fulmer
Research report published in August 1958 by the Industrial Development Branch, Engineering Experiment Station, Georgia Institute of Technology, in cooperation with the Employment Security Agency, Georgia Department of Labor.
No previous Digest report.
Limited number of copies available on request.

Research Problem. This report presents the results of statistical analysis to assess the propensity of Georgia workers to commute. The data on net movement of workers between counties have a vital bearing on basic economic research underway on per capita income estimates by counties.

Method of Study. The method of procedure employed in this report was that of sample selection by random methods from a finite universe. The known universe consisted mainly of firms covered under the Employment Security Program, noncovered firms of 100 workers or over, and large out-of-state firms which might employ workers from Georgia. Samples were selected from the covered firms by convention statistical methods. The results were inflated, depending upon the sample response obtained. Data on other categories were treated similarly where the sampling response and data on the universe were sufficient to justify application of inflation ratios.

A mailed questionnaire was employed, using follow-up by letter, telephone, and personal contacts.

Major Findings. Analysis of factors affecting commuting shows that the relative amount of commuting increases directly with the size of city, density of population, and size of plant.

Tabulations for 186 large firms employing 500 workers or over show that they not only provide 30 per cent of all Georgia's non-agricultural jobs, but that their employment is distributed to all of Georgia's 159 counties. At least 6,000 Georgians drive across state lines for jobs. The number of workers from other states who come to Georgia is almost three times as great.

than for government supported mortgages. For example, for conventional mortgages the median down payment for new houses was $5,000 and for existing houses $4,400. For houses having VA-guaranteed mortgages the median down payment on new houses was $2,[illegible] and on existing houses $3,100. For houses having FHA-insured mortgages, the median down payment for new houses was $3,[illegible] and for existing houses $2,700.

Approximately [illegible] of the families buying new houses and [illegible] of those buying old ones had a ratio of selling price to income of [illegible] or higher.

Completion Date. This is an ongoing study. (MEA).

10. ANALYSIS OF INTERCOUNTY COMMUTING OF WORKERS IN GEORGIA (MEA 7)
John L. Rutner

Research published in August 1959 by the Industrial Development Branch, Engineering Experiment Station, Georgia Institute of Technology, in cooperation with the Employment Security Agency, Georgia Department of Labor.

Previous Digest report.

Limited number of copies available on request.

Research Problem. This report presents the results of statistical analysis to assess the geography of Georgia workers commuting. The data on net movement of workers between counties have a vital bearing on basic economic research underway on per capita income estimates by counties.

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[illegible]

Comparisons of commuting between industry types show that construction, with 25 per cent, has the highest ratio; service, with a ratio of eight per cent, is lowest; manufacturing, transportation and public utilities are relatively high. (HKM)

11. PATTERN OF EMPLOYEE RESIDENCE IN RELATION TO PLACE OF WORK IN THE DECATUR, ILLINOIS REGION
George T. Marcou, Bureau of Community Planning, University of Illinois
Completed, October 1958
Conducted under joint sponsorship of University of Illinois and Illinois Division of Highways.
Previous Digest report # 38, Vol. 4, No. 2, November 1957.

Research Problem. To determine work-community patterns to a central city (Decatur, Ill.) from the numerous small towns around it. To determine which of the area and workplace factors are most significant in shaping this pattern.

Method of Study. The pattern of employee residence (obtained from an Illinois Division of Highways survey of employee residence for Decatur work places employing more than 100) was correlated with time-distance to Decatur, workplace location in the Decatur urban area, regional population distribution, employment opportunities, workplace size and growth, type of workplace activity, location of highway facilities.

Major Findings. The two most significant determinants of the regional commuting pattern appear to be: time-distance to workplace and employment opportunities (availability of "surplus" jobs in Decatur, availability of "surplus" labor in the small towns, competition between regional employment center for labor from the small towns). In terms of journey to work, small towns located close to the central city appear to be an integral part of the metropolitan area acting as "dormitory" communities for the central city. (GTM)

12. A STUDY OF THE LINKAGE PATTERN BETWEEN A CENTRAL CITY AND THE COMMUNITIES WITHIN ITS REGION OF INFLUENCE
George T. Marcou, Bureau of Community Planning, University of Illinois.
Research proposal submitted to Illinois Division of Highways for sponsorship.
No previous Degest report.

Research Problem. To develop a regional plan of land uses, the planner needs to know first, the extent of the region for each of the services provided within the region; second, the way in which these regional services are provided at the present time. Analysis of the pattern of dependency (or linkage) between communities in the region for work, business, shopping, recreationa, educational, water and other services would provide him with a basis for delimiting the region and establishing the existing demand for these services.

Method of Study. The major source of data will be a recently completed traffic survey of the Champaign-Urbana, Ill. region. This data will be supplemented by regional population, land use, and economic base studies. (GTM)

13. A STUDY OF ATTITUDE OF VARIOUS GROUPS TOWARD URBAN PLANNING
Jerome L. Kaufman and Gerald J. Cashman, Bureau of Community Planning, University of Illinois
Research begun September, 1958 -- Scheduled completion June 1960.
No previous digest report.

Research Problem. Ascertain some of the attitudes held by the general public and selected individuals and groups toward the concepts, goals and programs of Urban Planning. The study will be the first step in a long-range research program directed at improving techniques and methods of communicating information about Urban Planning.

Previous Relevant Research. A few studies of public awareness of planning programs and opinion studies of various planning topics have been made. However, no systematic studies of the underlying attitudes of the public and various groups toward Urban Planning have been made.

Method of Study. A sample of the general public and of the rural population will be interviewed in two small metropolitan areas closely comparable in all respects except that one has an Urban Planning Program and the other does not. Also, a select group of mass media personnel, local legislators, and planning commissioners will be interviewed in six Med-Western cities. The interviews would be based on a variety of depth attitude measurement devices.

Major Findings. Research is in very early stage of development. (JLK)

14. AN ANALYSIS OF DIFFERENCES IN THE EXPORT-SERVICE EMPLOYMENT RATIOS OF SELECTED CITIES IN THE UNITED STATES
John A. Reinecke (under the direction of Robert O. Harvey)
Graduate Research Paper
University of Illinois, Graduate College

Research Problem. The report tests the significance of ten variables alleged to influence the export-service ratioa of employment of aixteen U.S. Urban regions.

Method of Study. The following variables were tested for correlation with the export-service ratios of sixteen U.S. Cities: effective buying income, income per capita, population, percent of U.S. Population, percent of total employment which is in manufacturing, employment-population ratio, total retail sales, ratio of retail sales to effective buying income and two "proximity factors" computed from the population and distance of competing cities (see below). Only simply correlations were performed. The cities studied were not a sample, but represented all cities for which employment ratios or sufficient employment data to compute such ratios were available to the author.

13. A STUDY OF ATTITUDES OF WORKERS [illegible] TOWARD URBAN RENEWAL
James [illegible] Rothman and Donald [illegible], Bureau of Community [illegible],
University of Illinois
Research design [illegible], 1962 -- Published [illegible] date [illegible].
No previous legal [illegible].

Research problem. A certain area of the attitudes held by the general public and selected individuals and groups toward the program and progress of Urban Planning. The study will be the first step in a long-range research program directed at improving information and methods of [illegible] information about Urban Planning.

Previous Relevant Research. A few studies of public awareness of planning problems and specific details of various planning figures have been made. However, no systematic analysis of the underlying attitudes of the public and various groups toward Urban Planning have been made.

Method of Study. A sample of the general public and of the usual population will be interviewed in two small metropolitan areas [illegible] in all respects except that the [illegible] and the other does not. Also, a select group of [illegible] local [illegible], and planning [illegible] will be interviewed in the Mid-Western [illegible]. The interview will be based on a variety of depth attitude [illegible] devised.

Major Findings. Research is in very early stage of development. (1962)

14. AN ANALYSIS OF [illegible] IN THE [illegible] SERVICE EMPLOYMENT RATIOS OF SELECTED CITIES IN THE UNITED STATES
Ann A. Malinski (under the direction of Robert O. [illegible])
Graduate Research Paper
University of Illinois, Graduate College

Research Problem. The report lists the classifications of the employed [illegible] the exact [illegible] problem [illegible] employment [illegible] U.S. Bureau [illegible].

Method of Study. The following variables were used in the correlation with [illegible] ratios of eighteen U.S. Cities: [illegible] population, per capita income, [illegible], percent of U.S. [illegible] employment of [illegible] in manufacturing, employment [illegible], total [illegible] action, ratio of retail sales to effective buying income, [illegible] "proximity factor" adopted from the population [illegible] or [illegible] (see below). Fifty [illegible] were [illegible]. The [illegible] for which employment [illegible] or [illegible] employment data were available to the author.

Major Findings. A distinct negative relationship was discovered between the export-service employment ratio and the ratio of aggregate retail sales to effective buying income. A second finding was that a proximity factor appears to explain some of the variation in ratios of export-service employment if the distance to competing cities are given a lesser weight than the population of the subject city and competing cities. Results of this study and of an investigation by Dr. Robert Ferber ("Variations in Retail Sales Between Cities", Journal of Marketing, December, 1957, p. 295.) indicate that a useful "proximity factor" might be obtained from the sum of factors for all competing cities, each as computed below:

$$\frac{\text{(Population of Subject City)} \quad \times}{\text{(Population of Competing City A)} \times 1.4 \text{ Distance between City A and Subject City}}$$

(The root of 1.4 is only suggested. Several values between 1 and 2 might well be tested)

As might be expected, a negative correlation was discovered between the export-service ratio and the proportion of total employment which is in manufacturing and positive correlation was found with total retail sales, with aggregate effective income and with population. (ROH)

15. MEASUREMENT OF APARTMENT BUILDING EQUITY INVESTMENT EXPERIENCE
Robert W. Seibel (under the direction of Robert O. Harvey)
Independent study at the University of Illinois.

Research Problem. Evaluation of the experience of equity investors in apartment buildings raises the problems of what are the rates of return on the equity and how are they to be measured.

Major Findings. The broad range of rates of return actually experienced in the cases selected suggest that there is no typical rate realized on this type of investment in the Champaign-Urbana market. Variations in the financial plan were, to a large degree, responsible for the broad range of realized rates of return, thereby confirming that the financial plan is a prime determinant of the rate of return on the equity. Four different methods were utilized to measure the rate of return. An adaptation of the yield to maturity formula for bonds to this particular problem was most satisfactory:

$$\text{A A P P} = \frac{\dfrac{\text{Income} \begin{array}{l} + \text{Appreciation} \\ - \text{Depreciation} \end{array}}{\text{Years}}}{\text{Average Investment}}$$

Where:

AAPP = Average annual proprietary productivity

Income = Total income for the period after deductions for management expense and interest, but before depreciation and income tax deductions.

Major Findings. A distinct negative relationship was discovered between the export-service employment ratio and the ratio of aggregate retail establishments per 100,000. A second finding was that a community tended towards the ratio of the variation in ratios of export-service employment if it had attempted to compete for cities given a heavier weight than the population of the sub-city area competing cities. Results of this study and of an investigation by Dr. Robert Barber ("Variations in Retail Sales Between Cities", Journal of Marketing, January, 1957, p. 275) indicate that a more "probability figure" might be obtained from the ratio of factors for competing cities, such as computed below:

$$\frac{\text{(Population of Subject City)}^{x}}{\text{(Population of Competing City A)}^{x}} \quad x = 1.4 \text{ Difference between City A and Subject City}$$

(The root of 1.4 is only suggested. Several values between 1 and 2 might well be tested)

As might be expected, a negative correlation was discovered between the export-service ratio and the proportion of total employment which is in manufacturing and positive correlation was found with total retail sales, with aggregate effective income and with population. (Rogers)

1). MEASUREMENT OF ECONOMIC BUILDING EQUITY INVESTMENT EXPERIENCE (Robert G. Dethel (under the direction of Robert C. Barvey) Independent study at the University of Illinois.)

Research Problem. Evaluation of the experience of equity investors in apartment building raises the problems of what are the rates of return on the equity and how can they be measured.

Major Findings. The wide range of rates of return actually experienced in the cases reviewed suggest that there is no typical rate realized on this type of investment in the Champaign-Urbana vicinity. Variations in the investment-plan were, to a large degree, responsible for the broad range of realized rates of return, thereby indicating that the financial plan is a major determinant of the rate of return on the equity. Two different methods were utilized to measure the rate of return. An adaptation of the yield to maturity formula for bonds is the particular problem was most satisfactory:

$$A.A.R.P. = \frac{\text{Income} + \text{Appreciation} - \text{Depreciation}}{\text{Equity}}$$

Average Investment

Where:

A.A.R.P. = Average annual proprietary productivity

Income = Total income the period after deductions for management expense and interest, but before depreciation and income tax deductions.

Appreciation = Appreciation in market value during the period of analysis.

Depreciation = Depreciation in market value during the period of analysis.

Years = Period of analysis

Average Investment = Equity at the beginning of the period plus the equity at the end of the period divided by 2. (ROH)

16. A PARTICIPANT-OBSERVATION STUDY OF A SLUM COMMUNITY FACING REDEVELOPMENT
Herbert J. Gans
Previous Digest report: April 1958, No. 8
Research Problem, Hypotheses, Method of Study, see previous Digest report.
Field work for the study has been completed. The data are now being analyzed. A final report will be written, but publication plans are undetermined.
The study is being conducted as part of a larger study entitled "Relocation and Mental Health: Adaptation Under Stress", being undertaken by the Center for Community Studies, an affiliate of the Department of Psychiatry, Harvard Medical School of Massachusetts General Hospital, under a grant from the National Institute of Mental Health.

Major Findings. Preliminary findings have been reported in three papers, "The Peer Group Society", "An Analysis of Redevelopment and Relocation Planning for the West End of Boston", and "Some Notes on Physical Environment, Human Behavior and their Relationships". These will be eventually submitted for publication. (HG)

17. INTERCITY TRAFFIC MOVEMENTS AND THEIR RELATIONSHIP TO LAND DEVELOPMENT PATTERNS
F. Stuart Chapin, Jr. and Shirley F. Weiss
Urban Studies Program, Institute for Research in Social Science, University of North Carolina, Chapel Hill, in cooperation with N. C. State Highway Commission and U. S. Bureau of Public Roads.
Previous Digest report: None.

Research Problem. A central theme of the University's part in this research is the relationship of highway location to land development. Using intercity traffic data for a five-city area in the Piedmont Crescent, four specific investigations are contemplated: (1) a study of regional land development characteristics as related to traffic generation--for example, work commuting patterns, shopping patterns, and other forms of interaction in the five-city region; (2) a study of regional trade, industrial, administrative, and other traffic-attracting areas; (3) a study of intercity interaction in the Piedmont Crescent as determined from trip patterns (this investigation being carried out in relation to studies of economic interaction by R. W. Pfouts); and (4) studies of traffic-related problems anticipated within these merging metropolitan areas.

Method of Study. In connection with the first investigation above, the N. C. State Highway Commission in cooperation with the U. S. Bureau of Public Roads is conducting an external type O-D Survey. The survey is designed to determine the number and purpose of trips between the five cities (Greensboro, Winston-Salem, High Point, Thomasville, and Lexington) and to relate these trips to particular building and land uses. Interview stations have been set up on 36 highways in the primary and secondary systems radial to the five cities. The stations, generally operated on a 24-hour basis, are located at "valley points" of the intercity traffic flow, several miles outside the larger cities and, when possible, at county lines. The field work began on September 11 and will continue through November 3. Approximately 120,000 car and truck drivers will be interviewed.

Major Findings Anticipated. The O-D Survey results and the subsequent related analyses undertaken at Chapel Hill will be used in studying such questions as: "What is the present pattern of interaction between cities as measured by traffic movements? What can be expected to happen to the traffic pattern as the cities of the cluster grow toward each other and tend to merge into a massive metropolitan-like area? How will the developing land use pattern affect transportation needs and plans for expanded highway facilities?" (FSC)

18. THE ORIGIN AND DEVELOPMENT OF THE SOCIAL STRUCTURE AND CULTURE OF A NEW SUBURBAN COMMUNITY
Herbert J. Gans
Research began in September 1958 and is expected to last until 1961.
Publication plans have not yet been considered.
The study is being conducted by the Institute for Urban Studies, University of Pennsylvania.
No previous Digest report.

Research Problem. This study seeks to describe and explain the major processes by which an aggregation of suburban houses becomes a community, with special emphasis on the following topics:

1. Social, economic, cultural and other characteristics of the residents.

2. Reasons and motivations for the move to the suburban community.

3. The existence or absence of aspirations for life in the suburbs prior to moving into the community; the nature of these aspirations, and the subsequent effect, if any, on the development of the social structure and way of life of the community.

4. The nature of the house purchase as a familial decision-making process.

5. Changes in living patterns and family problems; type of residence; and use made of dwelling unit, open space, and community facilities in the move from city to suburb.

6. The nature of the community formation process, e.g. civic, social, and religious institutions; educational, governmental agencies; community facilities; major sub-cultures.

7. Factors which explain phenomena listed under 1-6 above.

Hypotheses. The study seeks to test some specific hypotheses, but will be mainly concerned with answering questions about the suburb raised by sociologists, city planners, and other critics and advocates of suburban life.

Method of Study. The major methods to be used are: Pre-occupancy mail questionnaire to the purchasers, intensive interviews with a small sample of these purchasers, participant-observation within the new community, and reinterviewing of the purchaser sample about 15 months after occupancy. (HG)

19. AN EVALUATION OF TWO NON-LIMITED ACCESS BYPASSES IN INDIANA
Charles Pinnell (under the direction of Harold L. Michael)
Master's thesis, January 1958
Purdue University, School of Civil Engineering
Previous Digest report: Item No. 42, Volume 4

Research Problem. See previous Digest report

Previous Relevant Research. See previous Digest report.

Method of Study. See previous Digest report.

Major Findings. The study revealed that the operational efficiency of non-limited access by-passes is very inadequate and that the observed increase in travel times and a large percentage of the accidents on the by-passes were due to the lack of access control. (HLM)

20. GEOGRAPHIC IMPACT OF HIGHWAY IMPROVEMENT
William L. Garrison and Marion E. Marts
Published by the Highway Economic Studies, 121 More Hall, University of Washington, Seattle 5, Washington. 7 x 9 inches, 139 pps., maps and photographs.
Sponsored by the Joint Fact-Finding Committee on Highways, Streets, and Bridges, Washington State Legislature.
Previous Digest report: Item 46, Volume 4.

Research Problem. To examine changes in transportation, land use, and business patterns concurrent with the reorientation of U. S. Highway 99 in the vicinity of Marysville, Washington.

Method of Study. Information was collected on changes in land values, business sales volumes, and travel patterns over a three year period extending before and after a major highway improvement. The information was examined statistically to determine trends and to isolate the effects of the highway reorientation.

6. The nature of the community formation process, e.g. rural, urban, and relative institutional; educational, governmental agencies, community facilities; minor sub-culture.

7. Factors which explain phenomena listed under 1-6 above.

Hypotheses. The study seeks to test some operational hypotheses, but will be mainly concerned with answering questions about the subject raised by sociologists, city planners, and other critics and advocates of suburban life.

Method of Study. The major methods to be used are: pre-occupancy mail questionnaire to the purchasers, intensive interviews with a small sample of these purchasers, participant-observation within the new community, and reinterviewing of the purchaser sample about 15 months after occupancy. (MM)

17. AN EVALUATION OF THE NON-LIMITED ACCESS BYPASSES IN INDIANA
Carlton Himell (under the direction of Harold L. Michael)
Doctor's thesis, January 1963
Purdue University, School of Civil Engineering
Previous Digest report: Item No. 6, Volume 4

Research Problem. See previous Digest report

Previous Relevant Research. See previous Digest report.

Method of Study. See previous Digest report.

Major Findings. The study revealed that the operational efficiency of non-limited access bypasses is very inadequate and that the observed increases in travel times are a large percentage of the accidents on the bypasses were due to the lack of access control. (HM)

18. SUCCESSFUL IMPACT OF HIGHWAY IMPROVEMENT
William L. Garrison and Marion E. Marts
Published by the Highway Economic Studies, 121 More Hall, University of Washington, Seattle 5, Washington. 7 x 9 inches, 132 pps., maps and photographs.
Sponsored by the Joint Bond-Highway Committee on Highways, Streets, and Bridges, Washington State Legislature.
Previous Digest report: Item 16, Volume 4.

Research Problem. To examine changes in transportation, land use, and business patterns concurrent with the reorientation of U. S. Highway 99 in the vicinity of Mountlake, Washington.

Method of Study. Information was collected on changes in land values, business sales volumes, and travel patterns over a three year period surrounding before and after a major highway improvement. The information was examined statistically to distinguish trends and to isolate the effects of the highway reorientation.

Major Findings. Results of the study emphasize the differential impact of highway improvements among businesses and land uses. (WLG)

21. STUDIES OF HIGHWAY DEVELOPMENT AND GEOGRAPHIC CHANGE
William L. Garrison, Brian J. L. Berry, Duane F. Marble, John D. Nystuen, and Richard L. Morrill.
Research completed and publication of volume is expected by January, 1959.
Department of Geography, University of Washington. Research sponsored by the Bureau of Public Roads, U. S. Department of Commerce.
Previous Digest reports: Items 15, 16, and 17, Volume 5.

Research Problem. To examine certain fundamental aspects of the geographical organization of economic life, the place of highways within this organization, and the geographical influences of highway changes. Special attention is given to problems of the spatial structure of retail business within the city, the value of access to urban residential land, the relation of consumer movements to retail business locations, and the effects of highway construction on the size and arrangement of physician service areas.

Major Findings. The findings of the studies emphasize urban structure and point out the changes in this structure brought about by improvements in the highway network. (WLG)

22. STUDIES OF THE CENTRAL BUSINESS DISTRICT AND URBAN FREEWAY DEVELOPMENT
E. M. Horwood and Ronald R. Boyce
Research is completed and a published volume is forthcoming.
Department of Civil Engineering, University of Washington.
Research sponsored by the Bureau of Public Roads, U. S. Department of Commerce.
Previous Digest report: Vol. 5, No. 1, April 1958, Item 13.

Research Problem. To investigate the structure of the central business district, and to evaluate central business district trends in relation to urban freeway development.

Major Findings. Several of the major findings are outlined below:

1. The Federal Interstate System of Highways is inadequate for current intra-city arterial traffic requirements and must be supplemented by state and local urban freeways.

2. The general effectiveness of any freeway network is internally dependent upon: (a) the extent of the freeway network, (b) the adequacy of the inner-distributor loop, (c) the amount of central city land used for freeways, and (d) the degree of freeway interference with established business linkages.

3. On a per capita basis there has been only a slight diminuition of CBD core activities during the past decade. On an absolute basis there has been no perceptible diminuition.

4. Studies of selected business activities which have been traditionally centralized in the city, reveal a range of decentralization trends (e.g. insurance headquarters office space has diminished 41%, and administrative electrical utility office space has diminished 10% in the CBD core since 1946). (WLG)

23. CHANGES IN URBAN OCCUPANCE OF FLOOD PLAINS IN THE UNITED STATES
Gilbert F. White, Wesley C. Calef, James W. Hudson, Harold M. Mayer, John R. Sheaffer, Donald J. Volk.
Department of Geography, The University of Chicago, under grant from Resources for the Future.
Previous Digest reports: November 1957, No. 28; April 1958, No. 3.
Department of Geography Research Paper No. 57, November 1958.
Available from Dept. of Geography, The University of Chicago, $4.00.

Research Problem. This is a report on an exploratory study of changes in the urban occupance of flood plains in the United States since the enactment of the Flood Control Act of 1936, with two aims in view: (1) to classify urban flood situations in such fashion as to make possible meaningful generalizations about them, and (2) to measure the actual changes which took place in the occupance of selected flood plains in the two decades following the flood control legislation in 1936.

Method of Study. More than 1,020 places in the United States with a population exceeding 1,000 have significant flood problems. That number was obtained by first reviewing published reports of the Corps of Engineers, U. S. Geological Survey and Weather Bureau in which mention was made of urban flood problems. With this list in hand, the district offices of the Corps of Engineers and the TVA were visited to examine what additional data concerning them were available in the files. As a means of finding out precisely what has been happening in occupance of flood plain areas 17 areas were studied intensively. They were selected so as to represent a wide variety in types of situations. In each case the flood plain and its present uses were mapped, changes in number of structures since 1936 were estimated, and representative citizens and public officials were interviewed.

Major Findings. At least 40 per cent of the potential annual flood losses are occurring in urbanized flood plains, and 23 per cent of those losses are in unprotected areas, 14 per cent in areas without protection but with authorized projects, 40 per cent in partially protected areas, and 23 per cent in completed projects. "We arrive at the tentative conclusion that at present the damage potential in urban flood plains in the United States is increasing at the rate of about 2.7 per cent per year. When allowance is made for protection works which are reducing all losses at the rate of about 3 per cent per year, the net decrease is about .3 per cent per year. -- The number of structures in urban flood plains is increasing in an overwhelming number of situations and in a volume amounting to a substantial part of the number of structures being given protection by engineering works." (HMM)

[illegible]

24. CRITIQUE OF CURRENT PLANNING OF SHOPPING CENTERS
Brian J. L. Berry
In publishable form by January of 1959.
Department of Geography, University of Chicago, with grant in aid from the Social Science Research Council

Previous Relevant Research. Associated with previous reported research Shopping Centers and the Geography of Urban Areas, now complete; An Aggregation Analysis of Urban Arterial Business, awaiting preparation of final manuscript; research for the United States Bureau of Public Roads reported elsewhere as Studies of Highway Development and Geographic Change, conducted at the University of Washington.

Problem and Hypothesis. That the generally accepted planning of a single hierarchy of three types of shopping center, neighborhood, community, and regional, below the level of the central business district, is invalid.

Method of Study. To compare the asserted causative trend of business location to three types of centers based upon convenience, shopping, and specialty aspects of goods and services, with location habits and locational trends of business types observed in reality.

Findings. Business types associate in reality outside the central business district in the following manner:

(1) In a specialized automobile and automobile accessories sales district.

(2) In three levels (neighborhood, community, regional) of a nucleated shopping center type supplying foods, clothing, etc. at retail to the consumer.

(3) In specialized household supply-services-repair facility districts oriented to non-focal points of urban arterials.

(4) In specialized highway-oriented districts supplying needs of the automobile and the motorist, and apparently requiring a well-signed frontage road location.

Types of business seeking out each of these locational situations have been recognized. From studies of change in the system there is no evidence whatsoever that any of these types is declining. For example, highway development results in certain types of reorganization toward the new pattern of highway movement in the highway oriented uses, and greater centralization within the nucleated type (therefore it is probably as safe an assumption as any to argue for the minimal nucleation to be of the neighborhood type).

A. Critique of current planning of metropolitan centers
Helen L. L. Berry
in publication with a by January of 1959.
Department of Geography, University of Chicago, with grant in aid
from the Social Science Research Council

Previous Relevant Research. Associated with previous reported research Shopping Centers and the Geography of Urban Areas, now complete; An Approximation Analysis of Urban Arterial Business, awaiting preparation of final manuscript; research for the United States Bureau of Public Roads reported elsewhere as Studies on Highway Development and Geographic Change, conducted at the University of Washington.

Problem and Hypotheses. That the generally accepted planning of a single hierarchy of three types of shopping center, neighborhood, community, and regional, below the level of the central business district, is invalid.

Method of Study. To compare the assumed normative trend of business location to three types of centers based upon convenience, shopping, and specialty aspects of goods and services, with location habits and locational trends of business types observed in reality.

Findings. Business types associate in reality outside the central business district in the following manner:

(1) In a specialized automobile and automobile accessories sales district.

(2) In three levels (neighborhood, community, regional) of a specialized shopping center type supplying foods, clothing, etc., at retail to the consumer.

(3) In specialized household supply-service-repair facility districts oriented to non-foot points of urban arterials.

(4) In specialized highway-oriented districts supplying needs of the automobile and the motorist, and apparently requiring a well-known freeway road location.

Types of business seeking out each of these locational situations have been recognized. From studies of change in the system there is no evidence whatsoever that any of these types is declining. For example, highway development results in certain types of movements tion toward the new pattern of highway movement in the highway oriented zone, and greater centralization within the specialized type (therefore it is probably as safe an assumption as any to argue for the choice of location to be at the neighborhood level).

Implications. That planning should be modified so as to maintain the economic health of each of these locational types. This should be possible while not sacrificing any advantages of community planning and civic design. (BJLB)

25. A COMPARISON OF TWO OIL CITY BUSINESS CENTERS: ODESSA-MIDLAND, TEXAS
Dickinson Weber (Master's thesis, under supervision of Harold M. Mayer)
Department of Geography, The University of Chicago
Available in microfilm from University of Chicago Library
No previous Digest report.

Research Problem. Two large neighboring special-function cities have developed along dissimilar but complementary lines, both based upon oil; one as a headquarters city, the other as a supply city. The object of the study is to determine the relations between the special functions and the character and development of the respective central business districts.

Method of Study. In explaining the reason for the contrast in geographic phenomena represented by the two oil cities, the study traces the key individual decisions underlying and affecting the present land use pattern. Several methods of analysis are employed (Rannels, Ratcliff, Murphy and Vance) in an endeavor to test in smaller cities techniques developed for larger and more complex areas. A combination of methods leads to a direct comparison of business center structures based upon standardized quantitative analysis of land use types.

Major Findings. Qualitative and quantitative description combined with a narration of establishment origin and development record a model of the youthful, expanding, single-industry town which hitherto has been unexplored with the same degree of detail. (HMM)

26. DETERMINATION OF THE TELEPHONE HINTERLAND OF METROPOLITAN CHICAGO
Walter A. Schroeder (Master's thesis, under supervision of Harold M. Mayer)
Department of Geography, The University of Chicago
Available in microfilm from University of Chicago Library
No previous Digest report.

Research Problem. The objectives of the study are (1) to determine whether data on long distance telephone messages can usefully be used as a geographic tool to measure spatial relations, as the basis for delimitation of an urban hinterland, and (2) to delimit the telephone hinterland of metropolitan Chicago.

Method of Study. Telephone traffic volumes to over 600 points during a 10 day period are mapped by graded circles. Expected traffic volume to each point using the gravity concept is calculated. Each point is then plotted on a map according to its standard deviation from a normal established by correlating expected and actual traffic volumes.

Implications. That planning should be modified so as to minimize the economic health of each of these locational types. This should be possible while not sacrificing any advantages of community planning and civic design. (PHB)

A COMPARISON OF TWO OIL CITY BUSINESS CENTERS: CUSSEA-MIDLAND, PEKIN
Bachelor's thesis (Master's thesis, under supervision of Harold M. Mayer) Department of Geography, The University of Chicago
Available in microfilm from University of Chicago Library
No previous digest report.

Research Problem. Two large neighboring special-function cities have developed along Illinois but distributary lines, both based upon oil; one as a headquarters city, the other as a supply city. The object of the study is to determine the relations between the special functions and the structure and development of the respective central business districts.

Method of Study. In explaining the research of the contrast in geographic phenomena represented by the two cities, the study proceeds the key individual decisions underlying and affecting the present land use patterns. Several methods of analysis are employed (Hammond, Ratcliff, Murphy and Vance) in an endeavor to test the better utility techniques developed for larger and more complex areas. A combination of attitude tests to a direct comparison of business-district structures based upon standardized quantitative analysis of land use types.

Major Findings. Qualitative and quantitative description combined with a narration of establishment origin and development results a model of the youthful, expanding, single-industry town which hitherto has been unexplored with the same degree of detail. (PHB)

PROGRAMMING OF THE PERIPHERAL HINTERLAND OF METROPOLITAN CHICAGO.
Master's Schroeder (Master's thesis, under supervision of Harold M. Mayer) Department of Geography, The University of Chicago
Available in microfilm from University of Chicago Library
No previous Digest report.

Research Problem. The objectives of the study are (1) to determine whether data on long distance telephone messages can usefully be used as a geographic tool to measure spatial relations, as the basis for delineation of an urban hinterland, and (2) to delineate the telephone hinterland of metropolitan Chicago.

Method of Study. Telephone traffic volumes to over 600 points during a 10 day period are mapped by graded circles. Expected traffic volumes to each point using the gravity concept is calculated. Each point is then ranked on a map according to its standard deviation from a normal established by correlating expected and actual traffic volumes.

Major Findings. The telephone hinterland of Chicago corresponds rather well with previously established hinterland concepts for Chicago. Because of the ubiquity of the telephone, the telephone hinterland expressed more aspects of interaction than the better known transportation patterns, and such relations are expressed in a more comprehensive manner.

The area enclosed by a triangle with angles at Cairo, Sioux City, and Saulte Ste. Marie, called the core telephone hinterland, stands out as exceptionally strongly tied to Chicago. Irregularities are caused by specific business and personal interests of Chicago firms and residents, particularly in resort areas and cities of special functions. Telephone calls from Chicago show a close urban orientation. (HMM)

27. THE DEVELOPMENT OF THE PATTERN OF RETAIL TRADE CENTERS IN A SELECTED AREA OF SOUTHWESTERN IOWA
John A. Laska (Master's thesis, under supervision of Harold M. Mayer)
Department of Geography, The University of Chicago
Available in microfilm from University of Chicago Library
No previous Digest report.

Research Problem. "The locations of the establishments which serve the inhabitants of a uniformly populated area tend to form an evenly spaced network of central places. -- It is the aim of this paper, in the absence of sufficient previous investigations, to analyze the development of the pattern of central places in a selected area."

Method of Study. "An approximately rectangular section of southwestern Iowa measuring approximately 55 miles in length by 40 miles in width was chosen --- Most of the population is dependent on agriculture -- The study area affords an opportunity to study central place patterns .. in a situation where the working of spatial forces has been generally free from the influence of other factors. -- The main sources were business directories, histories, and a field survey." -- All trade centers with at least one grocery store were plotted for 1851, 1867, 1878, 1913, and 1956.

Major Findings. "--the precise reasons for the arrangement of trade centers in the pattern were varied and complex. To isolate population and transportation as causal factors, without regard to their context, is to give an incomplete picture of reality. It is probably true, as has been shown, that size and distribution of the population in the study area was related to number and distribution of trade centers. However, implicit in this relationship is a continuance of the values of the population, their level of living, and other such considerations. Similarly, the effects of transportation are often enhanced, mitigated, or redirected by other factors with which they are in association. An adequate explanation of the trade center pattern, therefore, must await the completion of other studies." (HMM)

[illegible]

The [illegible] with an [illegible] or hinterland. The telephone hinterland of Chicago corresponds rather well with previously established hinterland concepts for Chicago. Because of the ubiquity of the telephone, the telephone hinterland represents more accurate or informative than the better known transportation patterns, and such relations are expressed in a more comprehensive manner.

The area enclosed by a triangle with angles at Cairo, Sioux City, and Battle Creek, hereby called the core telephone hinterland, stands out as exceptionally strongly tied to Chicago. Irregularities are caused by specific business and personal interests of Chicago firms and residents, particularly in resort areas and cities of special functions. Telephone calls from Chicago show a close urban orientation. (HGH)

7. THE CENTRAL PLACE PATTERN OF RETAIL TRADE CENTERS IN A SELECTED AREA OF SOUTHWESTERN IOWA

John A. Lagas (Master's thesis, under supervision of Harold M. Mayer), Department of Geography, The University of Chicago. Available in microfilm from University of Chicago Library. No previous Digest report.

Research Problem. "The location of the establishments which serve the inhabitants of a mainly populated area tend to form an overly spaced network of central places. -- It is the aim of this paper, in the absence of sufficient previous investigations, to analyze the development of the pattern of central places in a selected area."

Method of Study. "An approximately rectangular section of southwestern Iowa measuring approximately 55 miles in length by 40 miles in width was chosen -- Most of the population is dependent on agriculture -- The study area affords an opportunity to study central place patterns in a situation where the working of spatial forces has been generally free from the influence of other factors. -- The main sources were business directories, histories, and a field survey." -- All trade centers with at least one mercantile store were plotted for 1931, 1939, 1940, and 1950.

Major Findings. "--the precise reasons for the arrangement of trade centers in the pattern were varied and complex. To isolate population and transportation as causal factors, without regard to their context, is to give an incomplete picture of reality. It is probably true, as has been shown, that size and distribution of the population in the study area was related to number and distribution of trade centers. However, implicit in this relationship is a consideration of the values of the population, their level of living, and other such considerations. Similarly, the effects of transportation are often enhanced, mitigated, or redirected by other factors with which they are in association. An adequate explanation of the trade center pattern, therefore, must await the completion of other studies." (HGH)

# RESEARCH DIGEST

Sponsored by the
Urban Planning Research Group



Vol. 6, No. 1 April 1959

Prepared and distributed by
Department of City Planning and Landscape Architecture
University of Illinois
Urbana, Illinois

William I. Goodman, Editor

Contents

Contents

## EDITOR'S NOTES

A number of contributors submitted projects that have already been completed and/or published. Unless these were previously listed in the Digest, the policy observed by the Editorial Board prevents their mention. This would not necessarily apply to significant student theses and dissertations, since their chances of being published or listed elsewhere are appreciably lower than non-student work.

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The American Institute of Planners has set up a committee, with the Editor of the Digest as chairman, to study and make proposals for abstracting and indexing services. These would permit a formalized and systematic review of planning literature and other materials of interest to planners. Because of the potential contribution of such activity, the committee would welcome comments and suggestions from subscribers before it makes recommendations to the Institute.

Any project that is carried out for abstracting and indexing would have a bearing on the future of the Digest, of course, and possibly on other periodicals currently published in the planning field.

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From Don Foley:

"I think we perhaps should encourage a greater amount of reporting on the development and use of new planning approaches. This encouragement of reporting, whether in the Digest, the Journal of the AIP or some other medium, would foster a research-mindedness by professionals who otherwise might not be encouraged to report on how approaches worked out. Many professionals may feel that they are not possibly engaged in "basic" research and hence fail to report. Conversely academes in related fields may sense that this is a planning news exchange sheet and may not think their urban research belongs there or will be appreciated. Perhaps, too, we should give greater encouragement to reports by researchers in related professional fields--such as engineering, social welfare, law. But in all this we must seek constantly to clarify our own focus and then to communicate this via the title of the Digest and in every other way possible."

1. THE SOCIAL GOALS OF CONTEMPORARY BRITISH TOWN PLANNING
Donald L. Foley, Department of City and Regional Planning
Initial phases now underway, 1959-60 field study in Britain, draft for publication by Fall 1961.
Supported by Social Science Research Council and by Institute of Social Sciences (University of California) grants.

Previous Digest report: None

Research Problem. This study seeks to identify and report on the major social values, particularly those dealing with the character of cities and urban life, which British town planning is seeking to promote. The study will also analyze the various forces most influential in determining the relative priority of these values.

Method of Study. The methods employed will be essentially qualitative and remain relatively flexible. Personal interviews will be relied upon; various published and unpublished reports and other materials will be examined. Certain main hypotheses are developed, but are subject to further refinement. (They will be reported in a subsequent abstract.) (DLF)

2. AN INVESTIGATION OF HOW BEST TO USE EXISTING ARCHITECTURAL FORMS IN CITY DESIGN
Main Investigators: Barclay G. Jones, Stephen W. Jacobs
Status of Research: Project period to run from February 1959 to February 1960. Publication planned as series of articles or monograph.
Agencies: Sponsored by the Departments of City and Regional Planning and Landscape Architecture, and the College of Architecture of the University of California, Berkeley, with the cooperation of the Area Planning Committee of the Northern California Chapter of the American Institute of Architects and the San Francisco Department of City Planning. The project is supported by a grant-in-aid from the Rockefeller Foundation.

Previous Digest report: None

Research Problem. In every city there are a variety of physical elements - buildings, open spaces, textures, land forms, man-made objects such as street furniture, signs, etc. - which aid in the perception of the city and give it its quality as a design experience. They help the observer or inhabitant to orient himself in the city, increase his understanding of it, and enable him to relate to it. Some of these physical elements are witnesses to the passage of time or the occurrence of historic events. Others are evocative of important personalities, ideas or social groups. Many have artistic or architectural value or visual importance in their setting. A few give charm or character to their particular section of the city. In the continual rebuilding and enlarging of our cities these forms are usually neglected and are rapidly disappearing. Compared with the European procedures, American techniques for rebuilding cities are needlessly destructive.

Hypotheses. Four major difficulties result presently in the neglect and disappearance of these physical elements. They are:

1. The insufficient awareness of the value of the forms involved and the extent to which the people of the city treasure them - especially on the part of those in decision-making positions.

2. The absence of methods for identifying the important physical elements and of criteria for determining their relative value.

3. Present design approaches used by architects and city planners which generally do not take the trouble to retain significant forms.

4. The lack of techniques for considering the value of existing forms to the people of the area, and the lack of mechanisms for considering them at the local policy-making level.

Method of Study. The study will involve a survey of San Francisco to discover existing forms which should be considered for retention as the city develops and is rebuilt. On the basis of this survey, techniques for evaluating and retaining various physical elements of the city-scape will be worked out. Demonstration plans will be made showing the application of the techniques developed. Implementation measures will be surveyed and new ones suggested.

3. LAND USE PATTERNS IN LOS ANGELES 1924-1954
Frank G. Mittelbach
Early publication on vacant land absorption may be expected toward the end of 1959. Complete analysis of the land uses and their changes over time will be completed by about June, 1960.
Conducted by: Real Estate Research Program, University of California, Los Angeles

Previous Digest Report: None

Research Problem. This study examines the land use developments within Los Angeles City and its environs for the benchmark years, 1924, 1934, 1944, 1954. It attempts to test the hypothesis that land use patterns and changes in Los Angeles have been subject to similar forces as in other urban communities, and to determine the influence of geographical, economic and social forces on present and past land use patterns.

Method of Study. Land use data for the benchmark years have been secured from a public agency in Los Angeles. They take the form of statistics for grids superimposed upon the map of Los Angeles. The data have been mapped and electronic computers are being employed to process the information. (FGM)

4. SAMPLING OF PUBLICLY-AVAILABLE LOCAL DATA
Ramsay Wood
Conducted and sponsored by the Real Estate Research Program, University of California, Los Angeles.

Previous Digest Report: None

Research Problem. This study examines the feasibility of employing sampling techniques in providing more up-to-date, accurate and comprehensive information on real estate activity, land use, market indicators, and ownership of real property in Los Angeles County. A primary purpose is to examine the financial means required for undertaking such sample surveys and the extent to which the techniques could be employed in other communities.

Method of Study. Sub-areas of Los Angeles have been selected on a random basis and all types of data from Assessors offices, Building Departments, Title Companies, City and County Planning Offices, and other public offices are being compiled. Computer equipment will be employed for processing the data. (FGM)

5. REAL ESTATE AS AN INVESTMENT ALTERNATIVE
Fred E. Case
A final draft is being prepared and publication will take the form of a monograph.
The project is sponsored and conducted by the Real Estate Research Program, University of California, Los Angeles.

Previous Digest Report: None

Research Problem. This report examines the investment performance of different income-producing properties in Los Angeles, in comparison to other forms and types of investments.

Method of Study. Data on incomes and expenses were assembled for 108 income-producing properties in Los Angeles. Index numbers were prepared for three different types of uses. Calculations of net return on investment for the period 1934-1954 permitted comparisons with returns on stocks and bonds, and real estate investment performance in other communities such as San Francisco and New York.

Major Findings. It was found that the investment return on properties in Los Angeles varied somewhat from those in San Francisco and New York: that the rapid growth of the L.A. Metropolitan Area has undoubtedly been a significant influence in developing these differences. The Los Angeles experiences suggested that large fortunes were not made by these owners yet the size and consistency of the returns and the increases on capital values during periods of depression and prosperity were sufficient to provide "comfortable" standards of wealth accumulating. The study also pointed up the need for a much greater accumulation of historical information on real estate investment experiences. (FEC)

6. THE BUILDING INDUSTRY IN CALIFORNIA: A STUDY OF MANAGEMENT IN ACTION
James Gillies and Frank Mittelbach
A first draft is in process and the completed manuscript will be published in monograph form toward the end of 1959. The project is being sponsored and conducted by the Real Estate Research Program of the University of California, Los Angeles.

Previous Digest Report: None

Research Problem. To study the structure, financial characteristics, efficiency, market behavior, flexibility and continuity of building firms and to determine the reasons for their actions, ability to survive, and the causes of vertical and horizontal integration in their activities.

Method of Study. Employing sample surveys, case studies and other relevant data, a picture is being drawn of building firms in California. The study concentrates on the building - rather than construction - industry and attempts to gather all pertinent information which permit a detailed as well as broad analysis of the management behavior of the firms in California and the market which conditions their actions.

7. A STUDY OF THE CATALYTIC EFFECTS OF URBAN REDEVELOPMENT PROJECTS ON THEIR SURROUNDING AREAS IN WEST CENTRAL CHICAGO
Fredrick Blum
Department of Geography, The University of Chicago (Master's thesis under supervision of Harold M. Mayer)
Expected completion date: August, 1959.

Previous Digest Report: None

Research Problem. The various approaches to renewal range from extensive clearance to elimination of smaller pockets of blight in conjunction with a program for some controlled structural rehabilitation of sound buildings within the area. In either case, the redevelopment is supposed to act as a catalyst for its surrounding area. In some way, the upgrading and elimination of areas of blight is thought to stimulate the contiguous areas toward self-renewal. The attempt of this study will be to present for analysis an area in Chicago which has undergone a substantial amount of redevelopment in the past two decades.

Method of Study. By gathering data representing the period before and after the various redevelopment projects, the effects upon the surrounding areas may be ascertained. The study will involve collection and analysis of data on land use, population, community facilities, traffic, relocation, etc. (HMM)

8. RECREATIONAL BOATING IN METROPOLITAN CHICAGO
Crichton Schacht
Department of Geography, The University of Chicago (Master's thesis under supervision of Harold M. Mayer)
Expected completion date: August, 1959

Previous Digest Report: None

Research Problem. "The great increase in the number of pleasure craft and participants in recreational boating in the United States over the last decade have generated problems for already overcrowded and inadequate recreational boating facilities. Provision for adequate

boating and waterfront activities has become an important element of land use planning in many urban areas with waterside locations. The problem and major hypothesis of this study is that facilities for recreational boating in the Chicago metropolitan area are unable to meet the demand created by increasing numbers of small craft in the area.--Among the questions to be considered are: How does recreational boating occupy space in particular areas? What are the distinctive characteristics of this occupancy? How do the occupance patterns of one area differ from those of other areas? What problems arise in connection with different aspects of this occupance? What functions does this type of land use perform? For whom? What effects does it have upon other land uses?"

Method of Study. "The analysis will be based on field work including: interviews with boating officials and enthusiasts of boating organizations, mapping and photography, library research into background and statistical material." (HMM)

9. THE ALIEN TOWN: PATTERNS OF SETTLEMENT IN BUSOGA, UGANDA
Ann Evans Larimore
Department of Geography, The University of Chicago

Previous Digest Report: Vol. 4, No. 2, November, 1957, item 29.

This item has now been published by the University of Chicago Department of Geography as Research Paper No. 55, August, 1958, 208 pp. Available from The Department of Geography, The University of Chicago. $4.00. (HMM)

10. A COMPARISON OF TWO OIL CITY BUSINESS CENTERS: ODESSA-MIDLAND, TEXAS
Dickinson Weber (Master's thesis, under supervision of Harold M. Mayer)

Previous Digest Report: Vol. 5, No. 2, November 1958, item 25.

This item has now been published by the Department of Geography, University of Chicago, as Research Paper No. 60, November, 1958, 239 pp. Available from Department of Geography, The University of Chicago. $4.00. (HMM)

11. HOME BUYING AND FINANCING TRENDS IN SELECTED URBAN AREAS OF NEW YORK STATE
Professor Glenn H. Beyer, Department of Housing and Design, and Director, Housing Research Center. Sponsored with New York State funds from the College of Home Economics.
Second Annual Research Report published in 1958. "Cornell Home Buying Study" available from Mailing Room, Stone Hall, Cornell University, Ithaca, N.Y. 25¢

Research Problem and Method of Study. Same as Vol. 5, No. 2, November 1958 report, item 9.

Major Findings - 1958 report. There was an increase in both median borrowers' incomes and price of houses between 1957 and 1958. The median price of new houses was $16,600 during the last half of the year, and for old houses, $13,500. The ratio of old to new houses on which mortgages were granted continued to run approximately 2 to 1. The median ratio of purchase price to borrower's income for new house purchases was 2.42; for old houses, 2.14 Some differences in the home buying patterns were found among families in different age groups: Young families had more frequently rented their previous place of residence, and had smaller amount of liquid assets that they could apply against a down payment, than older families. Detailed data are also provided on size of houses being purchased (number of rooms and bedrooms), characteristics of families purchasing, and nature of financing arrangements. (GHB)

12. STUDY OF HOUSING NEEDS OF THE AGED
Professor Glenn H. Beyer, Project Director; Professor Alexander Kira, Assistant Project Director; Cornell University, Department of Housing and Design and Housing Research Center. Sponsored by the C.U. Agricultural Experiment Station, the New York State Division of Housing, and the Ford Foundation.
Research report published in 1958. "Housing Requirements of the Aged - A Study of Design Criteria" (including detailed classified annotated bibliography) available from New York State Division of Housing, 270 Broadway, New York 7, New York. No charge.

Research Problem and Method of Study. Same as Vol. 5, No. 2, November 1958 report, item 8.

Major Findings. The economic aspects (and governmental programs), sociological aspects and physiological aspects of the housing needs of the aged are described, as they have been determined from a search of existing literature and current practices. Detailed design and planning considerations are provided with respect to (a) activities and space planning, (b) design and equipment guides, and (c) site and neighborhood. The conflict between two points of view is pointed out: (a) there is essentially no difference between the aged and younger persons and (b) the aged are a special group requiring special housing accommodations. The conclusion is reached that in many respects, which are indicated in the report, many of the accepted requirements of the aged are nothing more or less than "sound basic criteria for all housing." On the other hand, certain areas were listed where this generalization may not apply, but where additional research -- of the type being undertaken in future phases of this project -- needs to be undertaken. (GHB)

13. IMPLEMENTATION OF LOCAL HOUSING STATISTICS PROGRAMS BASED ON NEED AND AVAILABILITY OF LOCAL STATISTICS
Marilyn Langford (under the direction of Professor Glenn H. Beyer). Doctoral dissertation, June 1959. Available through library loan service or on microfilm from Cornell University Library, Cornell University, Graduate School.

Research Problem. Assuming an adequate system of statistics to be an aid in decisions connected with both private and public policy and operations related to housing, an analysis was undertaken to investigate: (1) the need for housing statistics originating and used locally, (2) the availability of local housing statistics, and (3) the implementation of local programs of collection.

Method of Study. This study was undertaken through the analysis of views of informed persons--through both study of their writings and personal interviews. The individuals interviewed are generally considered to be authorities in different specialized areas, including credit and finance, real estate, building, commerce, local market analysis, government, and public housing.

Major Findings. The determination of need for housing statistics is based on general categories of use. These include: prediction of change in population, employment, and households; determination of potential markets, need and preferences; determination of the amount and kind of new construction; determination of prices and values of dwelling units; implementation of housing programs; location of markets; determination of direction of growth; and assistance in municipal financial planning.

The actual organization of statistics collection should involve the whole statistical community. In addition, it is desirable to develop coordination of statistics within the local governments. In both the community and governmental organizations, there are three possible degrees of involvement in statistics collection and improvement, the choice depending upon the needs and resources of the community. The first is coordination of purpose, which involves exchanging ideas at the planning stages and coordinating definitions and procedures. The second includes not only coordination but also data assembly and the publication of data for community use. Finally, when resources and strength of organization permit, there may be the need for the original collection of data. At all three stages, dynamic and objective leadership is essential to the establishment of a successful program.

The community-wide organization which is needed to provide local housing statistics should be quasi-public in nature. This organization should pull together not only all potential users of housing statistics within a market area but also should include representatives of the sources of data within the community, if improvement of statistics as well as collection is a goal. (GHB)

14. FINANCIAL ASPECTS OF AN URBAN RENEWAL PROGRAM
Detroit City Plan Commission, under a Demonstration Grant from the Housing and Home Finance Administrator.
Now underway, to be completed July, 1959.

Previous Digest Report: None

Research Problem. The study is divided into four parts, each being the subject of a separate outline:

Costs for a Complete Urban Renewal Program.
Effects of Urban Blight and Renewal on the Tax Base.
Financing of an Urban Renewal Program.
Determination of an Optimum Program.

Method of Study. Use of IBM cards representing, first, 77,000 of the 437,000 parcels of land in the City of Detroit and, second, each of the 15,000 blocks in the City. Relationship will be determined between assessed values and renewal status.

15. SCIENTIFIC CONCEPTS FOR CITY PLANNERS
Bruce D. McDowell (under the Direction of Howard K. Menhinick)
Master's Thesis, March, 1959, Georgia Institute of Technology, Graduate City Planning Program.
Available from Library of Georgia Institute of Technology on Inter-library Loan basis.

Research Problem. This research argues that the scientific treatment of city planning problems can be of great value and presents selected scientific concepts that show promise of being useful to city planners. These include concepts developed in the fields of physical and social sciences, mathematics and statistics. They include operations research, systems engineering, industrial quality control, telemetering, and feedback. In most cases, specific applications to city planning are indicated. (HKM)

16. METHODOLOGY OF THE ECONOMIC BASE ANALYSIS
Thera H. Richter (under direction of Ernst W. Swanson).
Master's Thesis, January, 1959, Georgia Institute of Technology, Graduate City Planning Program.
Available from Library of Georgia Institute of Technology on Inter-library Loan basis.

Research Problem. This research explores briefly current methodology employed in determining the economic base of a community, including "basic - non-basic" and "input-output" analyses, appraises the usefulness of these and other techniques used for analytical purposes, and suggests a possibly more useful method based on aggregate income analysis and projection, leading to a reconstruction of the "multiplier" in terms of income expenditures and investment. (HKM)

17. IMPACT (BY 1965) OF THE ST. LAWRENCE SEAWAY ON INDUSTRIAL DEVELOPMENT IN THE CHICAGO STANDARD METROPOLITAN AREA AND ITS ILLINOIS HINTERLAND
Joseph A. Russell, Alfred W. Booth, Jerome D. Fellmann, Howard G. Roepke, Department of Geography, University of Illinois
Research begun February 1959 -- Scheduled completion September 1959.
Conducted under joint sponsorship of Chicago Association of Commerce and Industry and State of Illinois, Division of Industrial Planning and Development.

Previous Digest Report: None

Research Problem. To determine the most likely industrial developmental trends within metropolitan Chicago and downstate Illinois consequent upon the opening of the St. Lawrence Seaway. To anticipate, additionally, the consequences of changes in the areas' industrial structures upon non-industrial basic activities, service activities, and population support potential. To provide essential information for the planning activities of individuals and corporations within the study area.

Previous Relevant Research. Studies of Seaway impact potentials for other selected Great Lakes Cities.

Method of Study. Analysis of the present industrial structure of the Chicago SMA with comparisons with the structure of the United States and selected older port cities; comparisons of industrial growth trends by industry groups. Analysis of present industrial locational factors positively or negatively affecting the existent industrial structure of the Chicago SMA and investigation of changes in industrial locational factors occasioned by Seaway-associated alterations in the area's transportation cost structure. Identification of the industrial types most likely to expand in Chicago SMA and its Illinois hinterland in view of the opening of the Seaway; extrapolation of Chicago's potential competitive economic position in comparison with other industrial port cities on the Great Lakes.

Major Findings. None to date. (HGR)

18. PERCEPTUAL FORM OF THE CITY
Professors Gyorgy Kepes and Kevin Lynch
Project to be completed June, 1959. One article has already appeared: "Some Childhood Memories of the City," by A. Lukashok and K. Lynch, Journal of the American Institute of Planners, Summer 1956.
Another article is scheduled to appear in the next issue of the magazine, Landscape, the article to be entitled, "A Walk Around the Block," by K. Lynch and M. D. Rivkin.
A monograph summarizing one branch of the work is scheduled for publication by the Technology Press later in the year, tentatively titled: "The Image of the City," by K. Lynch.
Project under the sponsorship of the Center for Urban and Regional Studies, Massachusetts Institute of Technology.

Previous Digest Report: Vol. 3, No. 2, item 46.

This was exploratory research into the visual form of cities, and its impact on the citizens. Many branches of possible study were tested, some of which were reported in the articles cited. The principal studies settled into two groups:

a) a study of how people orient themselves in city areas, how they image such areas in their minds, and how the physical

disposition of the city affects this image. This work will be reported upon in the monograph cited above.

b) a study of how the urban landscape transmits messages, both overtly through signs, and more subtly via conscious and unconscious symbols. Results in this area will appear at a later date.

In this final year, the above studies are being completed, and a new line of investigation is being followed concurrently. This latter has to do with the visual impact of the fast highway, as seen by the driver and his passengers, and of the means available for heightening this experience and making it a satisfying and continuous one. Studies of existing roads are being coupled with test designs of new possibilities. (KL)

19. THE RELATIONSHIP OF LAND DEVELOPMENT TO HIGHWAY LOCATION
John Manning Becher (under direction of F. Stuart Chapin, Jr.)
Master's Thesis in Department of City and Regional Planning, University of North Carolina, Chapel Hill, in cooperation with Urban Studies Program, Institute for Research in Social Science. Completed May 1958; available on Inter-library Loan.

Previous Digest Report: None

Research Problem. This was an exploratory study of the complex mixture of forces which are determinants of land development, with emphasis on the role of highway location as a determinant.

Major Findings. The influence that highways have on the overall land development pattern is difficult to isolate from the many factors determining land use. The effect on certain commercial and industrial uses is somewhat more apparent. (FSC)

20. DEVELOPMENT OF PHYSICAL PLANNING PRINCIPLES: THE IDEAL CITY
Thomas A. Reiner, Research Associate
Institute for Urban Studies, University of Pennsylvania
Publication expected summer 1959 in form of an illustrated monograph. This study is part of the City Planning Teaching Materials program financed by the Ford Foundation.

Previous Digest Report: None

Research Problem. A study of the development of planning principles as they evolved in the literature of the Ideal City. Characteristic and significant proposals have not been reviewed or evaluated on a comparative or an analytical basis.

Previous Relevant Research. "A Critical Survey of Published Physical Planning Principles," Thomas A. Reiner, Master's Thesis, Department of City Planning, M.I.T., June 1955.

[illegible] of the [illegible] this image. This work [illegible] upon the [illegible] cited above.

[illegible] a study of how the urban [illegible] transmit messages. [illegible] overlay through signal, [illegible] mobility via connections [illegible] and [illegible]. Results of this study will appear as [illegible] later.

In this final year, the [illegible] are being completed, and [illegible] line of investigation is being [illegible] carefully. This [illegible] to do with the [illegible] of the [illegible] industry, as seen by the [illegible] and air passengers, and of the [illegible] available for budget-[illegible] equipment and [illegible] and [illegible]. Studies of existing [illegible] are being [illegible] design of [illegible] [illegible]. (KM)

[illegible] FUNCTIONS OF [illegible] HIGHWAY [illegible]

[illegible] Theory [illegible] Theory, [illegible] Theory and Regional Planning, [illegible] of North [illegible], [illegible] in cooperation with [illegible] Program. Investigator: [illegible] Social Sciences. Completed by [illegible] available on [illegible] loan.

[illegible] Report: None

[illegible] Publication. This was an exploratory study of the complex [illegible] which are determining of land development, which [illegible] of [illegible] [illegible] "[illegible]".

[illegible] Publication. The [illegible] and highways have on the overall land development pattern [illegible] to isolate from the many factors [illegible] the [illegible] commercial and [illegible] [illegible] more [illegible]. (RSC)

[illegible] PHYSICAL PLANNING [illegible] - THE [illegible]

Theory [illegible], Physical [illegible]
[illegible] Theory, University of Pennsylvania
[illegible] [illegible] form of an [illegible]
This study is part of the City Planning [illegible]
program financed in the [illegible] [illegible].

[illegible] Report: None

[illegible] Publication. [illegible] of the development of [illegible] [illegible] of the [illegible] of the local [illegible]. [illegible] the [illegible] topographic [illegible] have not been [illegible] or [illegible] [illegible] [illegible].

[illegible] Report. "A Criterion Survey of Published [illegible] Literature", Thomas A. Adler, Master's Thesis, [illegible] of City Planning, M.I.T., June 1955.

Method of Study. Reading and interpretation of Ideal City proposals from about 1900 to date.

Major Findings. Ideal Cities, though significant and repeatedly used vehicles for the presentation of planning 'principles', often show a lack of sophistication in the propositions offered and the methods used to develop these. Nevertheless, Ideal Cities as a class can contribute to an understanding of the field's areas of agreement (perhaps the 'derived dogma') and disagreement. (TAR)

21. STUDY OF THE JOURNEY TO WORK
Howard S. Lapin, Research Associate
Institute for Urban Studies, University of Pennsylvania.
Research work is completed. Parts of the report have already been published or are scheduled for publication. See Traffic Quarterly, April 1957, "Analysis of Work-Trip Data" and "Report on Analysis of Urban Work Trips", the latter a paper presented at the Highway Research Board, National Academy of Sciences, January 1959. Complete work will be a mimeographed report issued by the Institute for Urban Studies, June 1959. All research work was conducted at the Institute for Urban Studies. Costs of special sortings of work-trip data were borne by the U.S. Bureau of Public Roads and the Philadelphia City Planning Commission. The paper, "Projection of Vehicle Trips in Philadelphia" by Robert Coughlin in consultation with Howard S. Lapin, is based upon the special trip tabulations and research findings of this project. The Coughlin-Lapin paper was reproduced in first draft form by the Philadelphia City Planning Commission.

Previous Digest Report, Vol. 2, No. 2, item 45.

Research Problem. To study the journey to work as a factor in city planning and traffic engineering: to consider past research and propose new and useful means for evaluation of the diurnal urban mass movements.

Previous Relevant Research. Bibliography of selected studies will be published with final report. See bibliography of Leonard P. Adams and Thomas W. Mackesey, "Community Patterns of Industrial Workers", previous Digest listing, No. 1, Vol. 2.

Hypotheses.

1. Work journeys comprise a large proportion of all travel and are the limiting factor in transportation design because of their hourly distribution.

2. Spatial relationships of homes and workplaces are determined by a composite number of forces, some of which have been described by J. Douglas Carroll.

3. There is a tendency of employment generating land uses to disperse American cities so as to reduce the spatial but not the temporal concentration of movement.

Method of Study. Graphical and statistical analysis of data obtained from special work-trip tabulations run for several cities of varying sizes. Analysis of published traffic reports, and utilization of transportation analysis and planning data prepared or obtained by Lapin while on leave with City of Philadelphia, Urban Traffic and Transportation Board over a period of three years.

Major Findings. See three publications referred to above. (HSL)

22. PLANNING AND EXPRESSWAY LOCATION SELECTION - A CASE STUDY
Paul Davidoff
Teaching Materials Program of Institute for Urban Studies, University of Pennsylvania. Program sponsored by Ford Foundation, study in progress.

Previous Digest Report: None

Research Problem. To examine the methods used (by the Delaware County Planning Commission) to assist state and federal agencies in selecting a route for a portion of a circumferential expressway to be located approximately ten miles outside of Philadelphia. To describe and analyze the role the planners played in the final determination.

Method of Study. Interview with key participants. Analysis of reports, minutes, and hearings of the different agencies involved in selecting a route location or in setting standards for route location determinations. (PD)

23. THE ECONOMIC GEOMETRY OF URBAN STRUCTURE: A GENERAL MODEL OF LAND UTILIZATION BY THE URBAN HOUSEHOLD SECTOR
Lowdon Wingo, Jr., Research Associate, Resources for the Future, Inc.
Writing in progress. First draft to be completed in late Spring.
Program of Regional Studies, Resources for the Future, Inc.

Previous Digest Report: None

Research Problem. This study seeks to develop a consistent theoretical framework within which some major problems of urban land use, population distribution, and land values can be viewed as coherent parts of the larger phenomenon of urban organization and change.

Previous Relevant Research. L. Wingo: "On the Measurement of Congestion in Transportation Systems", a paper given before the 38th Annual Meeting of the Highway Research Board; Richard F. Muth: "Economic Change and Urban vs. Rural Land Use," in a forthcoming issue of the Quarterly Journal of Economics.

Method of Study. This is primarily a theoretical effort which has eschewed the gravity model and similar physical analogies in favor of a characterization of urban structure based upon the general equilibrium framework of economics. This is seen as a specialized problem within the general field of location economics, and through adaptation of basic constructs in this field a model has been constructed which will simulate, and hence "explain," a variety of phenomena associated with urban growth and spatial characteristics.

Hypotheses. This model is actually an extended and articulated set of hypotheses, including

1. The valuation of the time spent in the journey-to-work is a function of the individual's marginal value of leisure and hence is closely associated with his imputed hourly wage rate.

2. Under conditions of full employment and competition in the labor market the time-costs and out-of-pocket costs of the journey-to-work tend to be passed on as costs of production through the accommodation of wage rates.

3. The time absorbed by congestion in a transportation system is a comparatively simple function of the capacity of the system and the demand on it measured at deadline and at point of demand generation.

4. In making the locational decision, individuals behave as though they were seeking an optimum combination of "nearness" to the employment focus and space (or density conditions) within price restraints asserted by the transportation technology.

Major Findings. Major findings are perhaps suppositious at this stage, but two conclusions seem warranted:

1. The interaction between land use and the organization and technology of urban transportation is so intimate that research or policy assertions dealing with one to the exclusion of the other have questionable value.

2. The economic "efficiency" of urban structure is meaningful only to the extent that consumer preferences concerning differential characteristics of urban structure are effectively expressed. Given differences in preferences, "urban sprawl" may in one case be an efficient structure, while in another case of differing consumer preferences it may be grossly inefficient. (LW)

24. INTERINDUSTRY RELATIONS OF A METROPOLITAN AREA
Werner Z. Hirsch, Resources for the Future and Washington University. Parts of the study will appear later this year as an article in the Review of Economics and Statistics. Another part was presented as "An Application of Area Input-Output Analysis" to the 1958 meetings of the Regional Science Association, and will appear in their Proceedings. Further parts will be included in a research volume financed by the Ford Foundation under the title "Projecting Economic Activity and Population of the St. Louis Metropolitan Area - the Input-Output Approach".

Previous Digest Report: None

Research Problem. The objective of this study was to develop an analytical framework and means of implementation for analyzing the local impact of public policies and private industrial development in the light of the needs, capabilities and desires of the area.

Methods of Study. An input-output table for the St. Louis Metropolitan area was developed for the year 1955. The table is based on an open, non-dynamic equilibrium model. It divides the local economy among industry and location lines, so that transactions are identified as taking place between given industrial sectors which are located either inside or outside the metropolitan area. There are a total of 33 industries; the first 16 are manufacturing industries. For some purposes, household and local government are included in the processing and for others in the final demand sector. In the first case, 29 x 29 technical coefficient and inverted matrixes result, and in the latter 27 x 27 matrixes. In all cases the final demand sector includes: Federal government; State government; gross capital formation; and export, broken down into 33 export industries. Data for the empirical implementation of this model came from the records of a large sample of firms in the St. Louis metropolitan area. For most of the important manufacturing industries, data from virtually all firms in the industry were collected and used. From the input-output table income and employment multipliers of the various industries were developed.

Major Findings. The metropolitan area input-output analysis promises to be a useful tool in comparing alternative development plans by estimating their impact on the area's employment, per capita income, basic employment stability, and fiscal situation. With its aid it is possible to show that some industrial land uses generate relatively more employment than income and other land uses do the reverse. Land uses also differ in terms of their economic stability impact. Employment generating land uses often creates fiscal problems for local governments.

Usually the alternatives are neither all black nor all white. Instead one possible land use might promise a somewhat larger impact than another, but also some additional employment instability. For the community to make an intelligent selection, keeping always in mind the feasibility of such a development, quantification of potential losses and gains can be helpful. Availability of input-output data, even if they are merely rough (but intelligent) estimates, can stimulate many groups in the community, to take an active interest in deliberations that will decisively affect their future.

Among the most specific findings the following will be mentioned: The St. Louis study reveals astonishingly low household technical coefficients and multipliers for virtually all industries. They testify to the area's close ties with the rest of the nation. The final demand matrix gives expression to the relative dependence of

the area on outside markets. St. Louis exported in 1955 about 26% of its output. However some industries, for instance, "other transportation equipment," exported up to 97% of its output. Of the different industries of the area, products of petroleum and coal have by far the smallest direct and indirect household income impact, while printing and publishing have by far the highest impact. Textile and apparel have by far the smallest per capita income direct and indirect impact, while motor vehicles have by far the largest one. Insofar as the direct and indirect employment impact is concerned, products of petroleum and coal have the lowest impact and plumbing and perhaps structural metal production the highest.

25. URBAN GEOGRAPHY AND THE AMERICAN CITY
Raymond E. Murphy
Writing in progress. Hope to have ready for publication in book form within two years.
Graduate School of Geography, Clark University

Previous Digest Report: Item No. 33, Vol. 4, 1957.

Research Problem. An attempt to organize the material of a rapidly growing field, urban geography, along systematic lines.

Method of Study. Concentrates on the American city. The central theme of the field is discussed, and then the research that has been done in the field is examined and the techniques and methods presented. Problems that need studying are considered as well as possible methods of attack. Emphasis is placed on approaches that will lead to generalizations. Includes a bibliographic summing up of the literature for each of the various aspects of the field. (RBM)

26. AN ANALYSIS OF THE NONBASIC INDUSTRIAL DEVELOPMENT POTENTIAL OF FAIRFAX COUNTY, VIRGINIA
Harland W. Westermann
Dissertation accepted for the PhD. Will be available in micro-film.
Graduate School of Geography, Clark University (under the direction of Raymond E. Murphy)

Previous Digest Report: None

Research Problem. This study is an attempt to create a system whereby the nonbasic industrial development potential of an urban place can be determined in a quantitative fashion. In the past, many urban communities have attempted to develop their nonbasic economic bases by "selling" the merits of their regions to any and all industries through the promiscuous distribution of brochure materials. It is the writer's contention that local nonbasic development might best be accomplished by determining, in some highly systematized fashion, the "investment opportunities" which exist in a place, and by selecting those business enterprises which might be interested in these opportunities. Thus, the purpose of this paper is to determine the manner in which these "investment opportunities" can be determined; the study area used to test the system is Fairfax County, Virginia (a suburban county of Washington, D. C.).

Hypothesis. If such correlations do exist, this tends to indicate that nonbasic activities are operated under somewhat less imperfect competition circumstances than has been believed. Indeed, within any large urban region there seem to be certain activities which have little or no "outside" competition. The type of activity, then, which can be classified as nonbasic is dependent upon the size of market required for an efficient production unit of that activity; if the market is large enough to absorb the product of such a unit, the unit may be subject to less than normal competition and may be included as nonbasic.

Method of Study. The study consists of five steps. These are: (1) determine the maximum theoretical development potential for the community under conditions of perfect competition; (2) reduce this industrial model by the types of activities which now exist within the community; (3) determine the "optimum size production units" (based on workers and value added), and eliminate all those units which require a market larger than that exhibited by the local region; (4) determine the industrial location requirements for each of those activities which have been continued; and (5) eliminate all those activities which are not suited to the region. The residue activities are now considered to represent "potential activities".

Major Findings. The system appears to have merit. However, in this study, data were available for only three-digit numbered industries (Standard Industrial Classification). It is apparent that, to achieve satisfactory results, a four- or even five-digit classification must be used. In addition an accurate industrial site survey must accompany this type of study. (RBM)

27. CAPABILITIES OF INDEPENDENCE AMONG COMMUNITIES WITHIN THE BOSTON STANDARD METROPOLITAN AREA
Lane J. Johnson
It is expected that this project will be completed by June, 1959.
Graduate School of Geography, Clark University, Worcester, Massachusetts
(Ph.D. dissertation under the direction of Raymond E. Murphy)

Research Problem. To describe and analyze patterns of independence capability within a metropolitan community, levels of capability being based upon the abilities of individual towns and cities to satisfy requirements of their resident populations for selected, "low level", economic facilities.

Research is directed at patterns formed by two classifications based upon independence capability. First is a twofold classification, below vs. at and above the line of complete independence capability. Eleven separate indicators and four combinations of indicators are examined from this point of view. Secondly, one indicator, employment, and the combinations are investigated from the standpoint of a threefold classification--deficient, balanced, and excessive.

It is also planned to explore other aspects of independence capability--its relationship to centrality and its variation as indicators are changed.

Hypotheses. As the parts of a metropolitan community are integrated and functionally differentiated to an extremely high degree, individual towns and cities within such an area vary greatly in the degree to which they contain common services for the satisfaction of their residents.

Centrality can be measured for any function in any area on the basis of that function's absolute concentration and its concentration in relation to the local, serviced group.

Within any given area, independence capability differs in terms of various functions.

Method of Study. Data for this study have been obtained from official records and various directories, including the classified sections of telephone directories. Assuming that the standard metropolitan area in New England reasonably approximates the metropolitan community (the commuting field of the primary center) and can be considered essentially a closed system for common urban services, town percentage contributions of each indicator and combination to the SMA total are matched against a control distribution, resident population or a relevant segment of it. This matching results in a measure of independence capability in the form of an index number, which with absolute concentration in terms of percentage constitutes the basis of all further treatment.

Major Findings. No final conclusions have been reached. However, those patterns already analyzed indicate that meaningful generalizations concerning patterns of independence capability can be discerned and that these patterns vary significantly depending upon the indicator chosen. (RBM)

28. STAGGERING OF WORK HOURS IN THE CITY OF NEW YORK TO RELIEVE TRANSIT CONGESTION
Henry Cohen and Marvin Roth
Preliminary explorations completed. Financing of studies now being arranged.
Office of the Mayor, Division of Administration, City of New York, in conjunction with the New York City Transit Authority and the City Planning Commission.

Research Problem. To determine the feasibility of staggering work hours to relieve subway congestion during "rush hours."

Hypotheses. Staggering of work hours of persons working in the New York City CBD would result in less crowding in the New York City subway system.

Method of Study. Preliminary analysis reveals that three major studies have to be undertaken to determine whether it would be feasible to stagger work hours, and what degree of relief it would afford.

1. Technical Study -- A mathematical model will be developed by which the impact of specific changes in working hours on passenger loads in the subway system can be measured. The data will be organized to express the geographic and time dimensions implicit in the trips to work or home. To systematically manipulate the large amount of data needed will require an elaborate mathematical "model" and the use of electronic processing. By the use of such a model, the impact of alternative patterns of work-hours changes could be measured and an optimum pattern devised to achieve the most "desirable" overall level of comfort throughout the transit system. The model would, for example, show how changes in morning work hours would affect not only passenger loads in the morning peak hours, but also in the afternoon peak hours.

2. Linkage Study -- The economy of the central business district of New York City is based upon many closely linked establishments and groups of establishments. The linkages are often expressed in close similarities in work-hour patterns. The problem is to determine the inter-relationships of these linkages which industries are the major determinants in the establishment of work-hour patterns; and the effect that changing work-hour patterns in these industries would have on allied and related industries. Several intensive studies of typical establishments will be undertaken to examine the extent to which changes in working hours are practicable.

3. Sociological Studies -- Work-hour patterns are related to an intricate web of social and cultural factors. A number of objective and subjective variables may influence the employee's acceptance or rejection of a job with its particular working hours. The problem is to determine the tolerance of different segments of the labor force to different working hour patterns, and thereby to evaluate the nature and intensity of potential reactions to changes in working hours. These aspects will be studied through interviews and questionnaires. (HC)

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# R E S E A R C H

# D I G E S T

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Urbana, Illinois

William I. Goodman, Editor

Contents

## EDITOR'S NOTES

The United States Junior Chamber of Commerce has set up a Professional Advisory Council on Community Development to advise on the formulation and execution of a sound civic planning and development program and to further public understanding of the role of community planning. A Research Sub-Committee, with representation from professional organizations in the fields of architecture, planning, civil engineering, landscape architecture, and traffic engineering has formulated a proposal to compile an inventory of all significant research activities now taking place that bear on urban communities. A two-year staffed project is now under consideration.

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Recent publications that deal with aspects of the urban and regional research process include:

1. A Preliminary Survey of Research in Landscape Architecture, by Thomas C. Hazlett. Issued by The American Society of Landscape Architects. Discusses potential research areas and resources. On the basis of this publication, regional conferences on landscape research are being arranged at several universities.

2. Exchange bibliographies (eleven issued to date) on subjects of interest to city planners. Started as a service to its members by the Committee of Planning Librarians, the service is now available on a subscription basis. Prof. Holway Jones, Librarian, Department of City and Regional Planning, University of California, is in charge of printing and distribution.

3. A Student's Guide to Resources for Professional Planning. Primary sources of data, statistical graphic, and textual; professional organizations allied to planning; agencies in the planning field. Published jointly by the Library and the Department of City Planning and Landscape Architecture, University of Illinois.

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As indicated in the previous issue of the Digest, a report and proposal was made to the Board of Governors of the American Institute of Planners to set up an indexing and abstracting service for planners. The Board accepted the report and authorized a committee to be appointed for the effectuation of the service. The committee would consider matters pertaining to location and sources of finance.

1. AN INVESTIGATION OF HOW BEST TO USE EXISTING ARCHITECTURAL FORMS IN CITY DESIGN

Main Investigators: Barclay G. Jones, Stephen W. Jacobs

Status of Research and Publication: Project started in February 1959 and is to run until February 1960. Two Progress Reports and a series of working papers have been produced so far in ditto. Publication planned as series of articles or monograph.

Agencies: Sponsored by the Departments of City & Regional Planning, Architecture, and Landscape Architecture of the College of Environmental Design of the University of California, Berkeley, with the cooperation of the Area Planning Committee of the Northern California Chapter of the American Institute of Architects and the San Francisco Department of City Planning. The Project is supported by a grant-in-aid from the Rockefeller Foundation.

Previous Digest report: Volume VI, No. 1, April 1959, Item 2.

Research Problem and Method of Study. Same as Volume VI, No. 1, April 1959, Item 2.

Major Findings. The findings to date which represent the first phase of the project are concerned with two separate matters. First, a cataloging and analysis of similar activity in the past. Secondly, a demonstration survey of San Francisco for the purpose of discovering the variety of physical elements - buildings, open spaces, textures, land forms, man-made objects such as street furniture, signs, etc. - which aid in the perception of a city and give it its quality as a design experience. A country-wide investigation has been made to discover expressions of interest in our subject today, and a survey made of theoretical and methodological writing which exists in the literature.

A rather large working bibliography has been compiled listing sources. Emphasis has been placed on literature concerned with the ways in which existing elements play a major role in perception of the city, and examples of attempts to put this principle into practice in the design of sections of cities throughout the world. A fairly lengthy list of projects in this country in which deliberate attempts have been made to retain existing elements on the site, for one reason or another and with varying degrees of success, has been compiled. Some examples in foreign countries have been noted also. Material has been collected on active projects throughout the country in which retention of significant elements is a major policy of the design. The considerable number of such projects suggests the subject is of vital interest.

A lengthy demonstration survey was made of San Francisco. An attempt was made to cover a wide range of physical elements extending from small objects such as street furniture to the largest scale features such as land plans. Examples of land plans include outstanding subdivision design and large topographical forms. A variety of survey techniques were used. Pre-existing lists were relied upon where available, and approximately ten per cent of the area of the city was subjected to actual field survey. The area covered was not in a single section but included the major downtown zone and eight other typical areas throughout the city. The survey items were entered on cards

printed for the purpose and small photographs of the objects attached. The survey results are recorded on almost 5000 cards. Much information has been gained concerning the desirability of making a survey and the proper methodology for conducting it. (BGJ)

2. DETERMINANTS OF RESIDENTIAL CONSTRUCTION
Leo Grebler and Sherman J. Maisel
Sponsored by the Commission on Money and Credit and conducted by the Real Estate Research Program, University of California, Los Angeles. A draft has been completed. Form of publication still to be determined.

Previous Digest report: None

Research Problem. No previous attempt has yet been made to bring together, critically review, or appraise the literature on the determinants of residential construction. This study represents an effort to review the verbal or qualitative models of the residential construction market, to present, analyze and test the statistical-econometric models, and to provide some positive contribution to an improved understanding of the residential construction and total housing markets.

Method of Study. The report first reviews literature on residential construction as it relates to housing market conditions, external and internal factors, secular trends, and long and short cycles. Three different types of tests are applied to the eight statistical-econometric models. These tests are intended to determine the internal consistency of the models and their agreement with the initial assumptions of the theory, the success obtained in extrapolating within the tolerance limits of the fitted equation, and the success obtained in prediction compared to other methods.

Major Findings. The preliminary review and testing of the verbal-qualitative as well as statistical-econometric models has not produced a complete, internally consistant and accurate framework that would allow a theory of market behavior to be tested and provide a basis for reasonably dependable prediction. However, the past attempts to provide more scientific tools represent pioneering efforts which have called attention to the complexities of the housing market. The study highlights the need for a more complete framework of identities in the housing market which would enable the analyst to consider factors now often ignored or cast aside as unimportant. (FGM)

3. STUDY OF BUNKER HILL URBAN REDEVELOPMENT PROJECT IN LOS ANGELES
Vincent Ostrom and Arnold A. Peterson
Conducted and sponsored by the Real Estate Research Program, University of California, Los Angeles.
Publication of certain sections of this study may be expected toward the middle of 1960.

Previous Digest Report: None

Research Problem. This study represents an effort to describe, analyze and evaluate the natural history of an urban redevelopment project. A primary purpose is to marshall all information bearing on the experiences of private and public groups during the urban redevelopment process. Since the particular urban redevelopment project under construction has not yet been completed, it will only be possible to deal with aspects up to the present day. Further research will be carried out as the project proceeds.

Method of Study. By searching through all public and private sources of information and by interviewing persons in strategic positions, it is intended to establish why the project was selected for urban redevelopment, how it was planned and what changes took place in planning, and what arguments were put forth by proponents and opponents of the project. (FGM)

4. INTRA-URBAN LOCATION THEORY
Charles Tiebout
Conducted and sponsored by the Real Estate Research Program, University of California, Los Angeles.
Report will be submitted for publication toward the middle of 1960.

Previous Digest Report: None

Research Problem. Current analysis of locations place major attention on locations between regions. Locations within a region, especially metropolitan regions, have received considerably less attention from the theoretical point of view. This study seeks to analyze current location theory to see what applications and modifications apply to intra-urban locations.

Method of Study. The study reviews major aspects of location theory with special emphasis on current literature. Where possible, extensions and modifications are made leading towards a theory of inter-urban locations.

Major Findings. Preliminary findings indicate that: (1) the assumption that firms repel each other in locations needs substantial modification; (2) intra-urban locations where demands can be assumed perfectly inelastic are approachable in terms of iso-vectures and iso-dapanes; and (3) other modifications of location theory are indicated. (CT)

5. MINIMUM COST SPACING OF ARTERIALS AND EXPRESSWAYS
Roger L. Creighton, Irving Hoch, Morton Schneider, and Hyman Joseph.
Research nearing completion. Preliminary results appeared in C.A.T.S. Research News (Volume II, No. 16) and in Traffic Quarterly (Oct., 1959). Further reports will appear in C.A.T.S. Research News and, possibly, in Highway Research Board proceedings.

Chicago Area Transportation Study, J. Douglas Carroll, Jr., Study Director

No previous Digest report.

Research Problem. To determine the minimum cost spacings of arterial and expressways in urban regions as related to named criteria.

Previous Relevant Research. Probably some, but not investigated.

Hypothesis. Minimum cost spacing is a function of unit construction costs, trip destination densities, trip length frequency distributions, value of time, relative speeds, ramp spacings, and other, lesser variables. These costs can be stated mathematically and minimized, for simplified cases.

Method of Study. Mathematical analysis and experiment.

Major Findings. Minimum cost spacings can be estimated but are dependent on accuracy of the values inserted. Two methods of finding minimum cost spacings check out quite well. Spacing results are extremely reasonable. Trip density and construction costs are very important variables affecting spacings. Minimum cost solutions can be achieved for arterials and expressways, or arterials can be stated as fixed and the minimum cost spacings of expressways alone can be estimated. The spacings of "junior" expressways as alternatives to "expressways" can be estimated. (RLC)

6. FEDERAL AIDS TO SLUM CLEARANCE IN PUERTO RICO, 1950-1956.
Joseph M. Heikoff
Unpublished Ph.D. dissertation undertaken 1956-58; under direction of Committee, Prof. Edward Banfield, Chairman

Research Problem. Attempt to evaluate the effectiveness of the slum clearance program in Puerto Rico that was developed with federal financial aid during the period 1950-1956. The following questions were asked: 1) Is the program written by Contress into the Housing Acts of 1949 and 1954 and administered by the HHFA to deal with slums in the United States suitable for an island like Puerto Rico? 2) Are the local agencies using the program effectively? 3) What forces shaped the program during its first formative years?

Hypotheses.

1. The federal slum clearance program, which was designed for the wealthy United States on the theory that economically more productive land uses could always replace blighted urban land if the nation as a whole paid for the write-off of capital value required to make the sites available for redevelopment, was not suitable for an economically underdeveloped island like Puerto Rico.

2. The effectiveness of the federal program was limited by its restrictions on the local authorities and by the lack of cooperation among the constituent agencies of the HHFA that prevented the expeditious planning and execution of slum clearance projects.

Methods of Study. The above hypothesis developed out of the writer's experience of several years of residence in Puerto Rico and employment as a professional planner in both local and federal agencies

engaged in housing, slum clearance, and economic development programs. The basic method of the study was to record the writer's observations on the operation of the slum clearance program; to note the observations of informed persons on the effectiveness of the federal program in the United States and the applicability of slum clearance on the American model in underdeveloped countries; and to contrast the objectives and methods of locally financed slum clearance and housing activities with programs aided and controlled by federal agencies.

Major Findings.

1. The causes and character of slums in Puerto Rico are different from those in the United States. In Puerto Rico they have not resulted from the deterioration of once-acceptable housing; they consisted of self-built shanties constructed by squatters on marginal land that had no productive use and was frequently government owned.

2. Although many projects were started, the accomplishments of the program were limited in terms both of the federal program itself and the extent of the slum problem in Puerto Rico.

3. Lack of cooperation by the PHA, the FHA, and the URA retarded the solution of problems of family relocation and redevelopment of cleared sites and thus delayed project planning and execution.

4. Federal objectives for slum clearance were: 1) to eradicate social problems by eliminating deteriorated housing, 2) to improve the financial position of local governments, 3) to induce private enterprise to undertake redevelopment, 4) to improve the competitive position of central cities in relation to the fringe areas. The local objectives for the program were quite different: 1) to improve housing conditions, 2) to stimulate the local economy by federal spending. The consequences of these differences in objectives were that project sites were selected on the basis of potentiality for redevelopment; slums that were the worst menaces to life and health were by-passed; and the program as a whole and the individual projects were formulated without any regard to the island's economic development objectives. If federal aids for slum clearance and housing had been used to further the programs that had already been developed by the local authorities, more families could have been better housed and the federal capital more efficiently used to advance the island's economic growth.

5. The success of federal aid programs depends to a large measure on the development of effective inter-governmental and inter-agency relations. The example of the slum clearance program in Puerto Rico indicates that more attention needs to be paid to this aspect of program formulation by the federal authorities and that they should provide sufficient flexibility to permit programs to be better adapted to local conditions. (JMH)

7. COMPARATIVE STUDIES OF CENTRAL PLACES
Harold M. Mayer and Brian J. L. Berry
Project commenced October, 1959; publications to appear in 1961-62.
Department of Geography, The University of Chicago, under grant from the Office of Naval Research
No previous Digest report

Research Problem. To develop a quantitative or predictive theory or model of central places, central place functions, and complementary regions. Having built up a knowledge of threshold requirements of central goods and the relations of range, and therefore trade area, to the spatial distribution of population, one would be able to predict the hierarchy of central places, the functions of these centers, the trade areas or complementary regions focused upon each center, and the functions for which the center is a focus.

Previous Relevant Research. There has been a long history of central place and trade area studies, including those of Christaller, Brush, Bracey, Green, and Loesch, and more recently by Berry and Garrison. Many studies of individual central places have been made; likewise there have been many studies of trade areas for particular goods and services. While these studies have important implications for students of the urban hierarchy, they have not provided formal tests of the hypotheses of the theory against reality.

Hypotheses. The basic concept of central place theory is that there exists a set of places which serve as centers for diffusion and distribution of ideas, services, and goods which meet demands of population in complementary regions both within and without central places, and that the central places are arranged in a hierarchy with respect to each other. This hierarchy is spatially arranged in such manner as to maximize the satisfaction of the needs of the population within the complementary region . Central places are usually identified with urban places, or with nodal points such as shopping centers within urban places.

Central places are defined in terms of the functions they perform for their complementary regions. These functions, in turn, give rise to a hierarchy of central places. Each function has a threshold requirement of minimum size of complementary region, below which it will not be economically justifiable. The nesting of each successively lower threshold within complementary regions of higher order functions, and, where justifiable, the duplication of thresholds within larger regions give rise to a spatial ordering called the "urban hierarchy".

Method of Study. Initially, five contrasting areas are to be studied: (1) an area within a large city, (2) a suburban area with contrasting types of suburban communities, (3) a region of intensive agriculture, (4) a region of extensive agriculture and grazing, and (5) a region combining agriculture and mining. Quantification requires the following steps: (1) collection of information in the field concerning urban functions, (2) statistical analysis of each central function to derive the most frequent patterns of spatial association, (3) development, by means of home interview and other survey techniques, the size and shape

of trade areas, social and economic characteristics of populations served, and travel habits. Also, estimation of densities of population, and, from interview data, measurement of accessibility to central places via roads and transport media of varying quality; (4) estimation of threshold requirements and ranges of goods, and (5) quantification of the general relationships between range, threshold, spatial distribution of population and purchasing power, social and economic characteristics of populations, and accessibility. (HMM)

NOTE

Projects 9 to 25 comprise a resume of the principal studies being conducted by the Joint Center for Urban Studies of the Massachusetts Institute of Technology and Harvard University. All of the studies listed were started in 1959, and none has so far reached the point of publication. The material is submitted by Prof. Martin Meyerson, Director of the Institute.

8. ATTITUDES TOWARD THE CITY: A PHILOSOPHIC HISTORY
Morton White, Professor of Philosophy, Harvard University

Professor White has been studying attitudes toward the city in America, as reflected in the writings of distinguished thinkers ranging from Jefferson to Robert Park. He would like to extend his researches to the common man's attitudes toward and images of the contemporary city (that is, the city of the past half century).

Professor White wishes to prepare a reasonably self-contained essay which would form a part of a larger history of attitudes toward the American city.

9. BRITISH LEGISLATIVE PROVISIONS GOVERNING COMPULSORY ACQUISITIONS OF LAND
Charles M. Haar, Professor of Law, Harvard University

Professor Haar, who has made a systematic study of the British Town and Country Planning Act, 1947, wishes to analyze the significance of the Town and Country Planning Bill introduced by the Conservatives this year. He would examine the bill on the basis of general planning theory implications as well as for eminent domain procedures. The bill, which differs markedly from existing legislation, makes a series of "planning assumptions" which raise difficult issues in market value calculation, in law, and in potential planning development. The British legislation should illuminate problems which are already of concern in the United States. For example: what effect should zoning, subdivision controls and the master plan have in assessing fair market value in eminent domain proceedings? A body of court decisions is developing, often of a contradictory nature, and without reasoned elaboration.

10. A COMPARATIVE STUDY OF POLITICS IN TEN TO FIFTEEN OF THE LARGER METROPOLITAN AREAS OF THE UNITED STATES
Edward C. Banfield, Professor of Government, Harvard University.

Professor Banfield is interested especially in the kinds of party structure (whether "machine" or some alternative possibility), in the

distribution of power and leadership, in the ethos of the politician and the voter, and in political relations between central cities and suburbs, and central cities and states. These matters will be studies within the context of certain substantive problems, especially the following: a) housing and urban renewal; b) metropolitan organization; c) race; d) mass transportation; e) law enforcement; and f) planning. This investigation will lead to book-length publication.

11. CRITERIA FOR URBAN DESIGN
Eduard F. Sekler, Associate Professor of Architecture, Harvard University.

Present-day criticism of proposed design schemes for urban areas is inadequate. Urban design criticism is not yet comparable to art criticism where methods of morphological analysis have been refined.

Professor Sekler proposes to investigate to what extent the methods and principles of art history analysis may be employed in urban design criticism. In this effort, he would draw upon the tradition of the German school (Riegl and Schmarsow to Woelfflin, Worringer, Brinckmann, and Frankl) and English-speaking scholars (Geoffrey Scott, Pevsner and Wittkower).

12. DEVELOPMENT DECISIONS IN EARLY SUBURBS OF THE BOSTON METROPOLITAN AREA
Sam B. Warner, Jr.

Mr. Warner has prepared as his Ph.D. thesis (under the supervision of Professor Oscar Handlin of Harvard) an analysis of suburban growth of Roxbury, West Roxbury and Dorchester between 1870 and 1900. He located the principal house-builder decision-makers from over 28,000 building permits and attempted to account for the uniformities of the suburbs by relating the information of economic and social history to the background and behavior of these decision-makers. The results achieved so far demonstrate the process of suburban growth in this area.

Mr. Warner, within a year's time, expects to develop the potential, within the material he has gathered, into a book-length analysis of suburban growth decisions in the Boston area. The book will also cover methods of dealing with empirical statistics in historical studies of cities.

13. ECONOMIC IMPLICATIONS OF CITY SIZE
R. S. Rodd, PhD candidate, Department of Economics, MIT

Among the most controversial and least understood aspects of urban development are the effects of scale. Mr. Rodd proposes to explore the interaction between size and the local economy. He will examine the economic effects of city size; functional specialization by size as reflected in the uneven distribution of economic activities among cities of varying size; the range of city sizes over which there are increasing returns; and the sources as well as the relationships between the economies and diseconomies of scale. He will also analyze the economic relationships which lead to a system of cities and the reasons for the

probable shape of the size distribution. The study will also try to establish, with a given state of technology, arts, business organizations, and economic scarcity, the criteria for an optimum distribution of population among cities of different sizes.

14. EVALUATION OF DIFFERENCES IN DEVELOPMENT PATTERNS OF FRENCH CITIES
Daniel Lerner, Professor of Sociology and International Communications, Center for International Studies, MIT.

This study will try to explain the reasons for the differences in urban and regional development in France "A" (La France Dynamique) and France "B" (La France Statique). Professor Lerner believes there are fruitful issues worth more detailed investigations growing out of this distinction between France "A" and France "B". Most characterizations of the two Frances have centered on a comparison between the principal cities representing each of the two types. For example, Lille is the dynamic type of city which supposedly characterizes France "A"; Bordeaux is the model of the retrograde city which characterizes France "B". The hypothesis of the two Frances has been advanced over the past few years by leading French thinkers, such as Maurice Duverger and Francios Goguel. It has been the basis for recommendations on constitutional reform, programs of taxation and investment, industrial location in technical training schools, etc. Professor Lerner is interested in determining how these problems can be efficiently investigated and what other issues are suggested by this dichotomy. He expects to engage someone to work with him through the month of April in each of the two areas, developing the necessary data. He plans to gather and process these data and develop a publishable paper.

15. ISSUES OF RACE IN NORTHERN CITIES
Charles Abrams, Visiting Professor of City Planning, MIT

The focus of National attention on the racial problem has been centered mainly on the South but the North has also been feeling the growing impacts of Negro migrations and of the problems of housing, employment and residential segregation flowing from them. Mr. Abrams proposes to identify those problems and the impacts they are having on Northern communities as well as on the national scene. He will place particular emphasis on housing, but he will also examine questions of employment, segregation and education; the legal problems and issues involved, both at the national and local levels, in the quest for equality, the obstacles to economic and legal equalization, and the role of the judicial and administrative agencies at all levels of government, including the work of the state and local agencies which have been set up to cope with the obstacles. He will also identify the problems still remaining and suggest policies which might help resolve them within the framework of American institutions.

16. MEASUREMENT OF URBAN TRAFFIC
Dr. Aaron Fleisher, Division of Sponsored Research, MIT

Transportation is a serious urban problem and a strategic aspect of urban development. Many attempts have been made to deal with traffic

governor shape of the wage distributions. The study will also try to [illegible], with a given state of technology, [illegible], business organization and [illegible], [illegible], the [illegible] for an optimum distribution of population being pulled in different areas.

11. [illegible]
[illegible], Institute of Technology and International [illegible],
[illegible]

This study will try to ascertain the reasons for the differences in [illegible] development in Region "A" [illegible] and Region "B" [illegible]. [illegible] Region "A" and Region "B". [illegible] of the two regions [illegible] the [illegible] Region "B". [illegible] of the two Regions [illegible] over the past [illegible] years [illegible]. [illegible] and [illegible]. [illegible] in each of the two areas [illegible] a publishable paper.

12. [illegible]
[illegible], Department of City Planning, MIT

The [illegible] on the [illegible] in the [illegible] of the [illegible] and [illegible] as well as on the [illegible]. [illegible] of government, [illegible] and [illegible] the [illegible] of the [illegible] and [illegible].

13. [illegible]
Dr. [illegible], Division of [illegible] Research, MIT

[illegible] is a [illegible] problem and a [illegible] subject of [illegible]. [illegible] to deal with [illegible]

circulation, to minimize the frictions and inefficiency of daily passenger and goods movements. These efforts have failed largely through a lack of adequate information on the sources of traffic generation, the flows and the interrelations of land use and traffic.

Dr. Fleisher wishes to devise measures of the traffic generated within the city by various sources and to consider the relationships that may exist among these measures. For the start, only land use, density, and the transportation net is to be considered. The possible relations will be tested by simple analysis of variants and regression models. The relevance of other analytical procedures such as, waiting line theory and linear programming, will also be considered. A paper evaluating this study and similar approaches will be prepared.

17. PHYSICAL CAPACITIES OF URBAN PASSENGER TRANSPORTATION MEDIA
A. S. Lang, Assistant Professor of Transportation Engineering, MIT

Professor Lang wishes to investigate the comparative physical characteristics of urban passenger transportation systems. His aim is to establish a set of criteria for measuring the physical effectiveness of different urban transportation media and to classify existing transportation media on the basis of their performance judged by these criteria. He also plans to develop a set of simple models to permit an analysis of the physical characteristics of various systems and a more exact statement of their relative capacities given some fairly specific transportation demand situations.

18. THE POLITICS OF TRANSFORMATION: TYPOLOGIES OF MUNICIPAL ALTERATION OF THE PHYSICAL ENVIRONMENT
Robert C. Wood, Associate Professor of Political Science, MIT

Professor Wood is interested in the attempts of communities, similar in economic and demographic terms, to transform their physical environments. He proposes to measure physical change -- through construction indices, building permits, renewal and redevelopment projects, etc. -- and to compare these indices with social and political characteristics of different jurisdictions. By classifying varieties of physical change, varieties of communities, and varieties of both political institutions and informal processes, a series of typologies can be developed and perhaps subjected to statistical analysis.

Professor Wood would like to utilize factor analysis in this inquiry, plus appropriate indices for typing community social organization. He would also like to study the participants in the politics of change. One method might be through applying game theory in quantitative as well as qualitative terms.

The research would be exploratory, tying in the politics of change with ecological studies, personality-politics research, and other recent developments.

19. POTENTIAL INFLUENCE OF INFORMATION TECHNOLOGIES UPON METROPOLITAN ORGANIZATIONS
Richard L. Meier, Visiting Associate Professor of City and Regional Planning, Harvard University

Professor Meier is concerned with the rapid growth of the use of computors and related information handling equipment. There are many applications of mass data handling to urban relationships, both in understanding existing situations and proposing new solutions. For example, what kinds of information handling will inrease the capacity of a metropolitan traffic system? What are the locational requirements for automatic factories? How is the electric power distribution system affected when it is operated by a computor?

Professor Meier wishes to explore the possibilities of harnessing information technology to the service of the urban community. He expects that a monograph he would prepare would indicate the empirical tasks most productively programmed by computors. One problem will be selected for detailed attention.

20. SETTLEMENT PATTERNS: AN INTRODUCTION TO CROSS-CULTURAL ANALYSIS OF SPACE UTILIZATION
John W. M. Whiting, Professor of Education and Director of the Laboratory of Human Development, Harvard University

A wealth of material exists in the cross-cultural files of ethnological reports classified at Yale University on the settlement patterns of various preliterate societies. These materials have not been pulled together and analyzed on a comparative basis. The relations between house type, building construction techniques, space utilization of grouping of buildings has not been comparatively studied in relation to kinship structure, or economic activities, or other basic cultural characteristics of societies.

Professor Whiting proposes to do a preliminary investigation into the existing but unexploited materials in the cross-cultural files preparatory to a large-scale investigation of house and community space utilization. The preliminary work could form the basis for new research on urban settlement patterns.

21. THE URBAN FAMILY HOUSE: A PROJECT IN DESIGN
Serge Chermayeff, Professor of Architecture, Harvard University

Professor Chermayeff proposes to prepare alternatives to the present stereotyped urban housing accommodations which drive families to the suburbs. The aim is to design new kinds of individual urban family houses and new kinds of groupings of these houses which will combine high density of population with no loss of amenity or privacy. The design phase will be preceded by a period of analysis of examples of successful urban housing of the past, and study of the few examples of more recent proposals such as those for new kinds of row housing, and by some selected consumer interviews. Subsequent to the design phase, the more promising of the design alternatives will be examined for their cost, land use and other implications.

Professor Chermayeff anticipates that the results of the study will be presented in a monograph or other illustrated publication.

22. UTILITY OF BOSTON'S METROPOLITAN DISTRICT COMMISSION
Charles R. Cherington, Professor of Government, Harvard University

Professor Cherington has begun an analysis of the Metropolitan District Commission, the administrative agency with operative functions crossing corporate boundary lines which has served as a prototype for both advocates and students of metropolitan integration. Although the MDC and its antecedent components have a history of more than 60 years, the agency has never been subjected to thorough critical study.

Professor Cherington has published an introductory account of the MDC in Stephen Sweeney's Metropolitan Analysis (University of Pennsylvania Press, 1958). He proposes to extend this study to a monograph which will describe the life history of this agency and will assess its usefulness in the field of urban government. He will examine the reports of the Commission and the wealth of official and unofficial materials on its activities throughout the years. The main research effort, however, will be spent in intensively interviewing those who have served with the Commission or have been concerned with it in the Legislature and the metropolitan municipalities.

A central theme of the monograph will be the extent to which a special agency such as the MDC can be adapted to changing metropolitan conditions.

23. THE VISUAL FORM OF THE METROPOLIS: EXPLORATIONS IN PERCEPTION
Kevin Lynch, Associate Professor of City Planning, MIT

The Technology Press is publishing some of the results of a four-year exploratory study by Professors Lynch and Kepes on the different impressions of the city held by various citizens, the imageability of the city, orientation within the city, and how visual knowledge and experience of urban form is organized. Since most persons do not confine their visual impressions to the relatively small central areas of two or three square miles as previously investigated, Professor Lynch wishes to extend his analysis to the images of the metropolitan region and to the question of how environments at the metropolitan scale can be given visual shape and form.

Professor Lynch proposes a study of the image of the metropolitan region: its nature, its function, and how it may be clarified and strengthened by physical arrangement. The study would be conducted by Professor Lynch (an urban design specialist) and by a psychologist (specializing in perception). A sample of persons resident in three or four localities of the region would be interviewed intensively for the meaning they assign to various elements in the physical arrangements of the metropolis. The same general procedure would be followed as was employed in the earlier study, to give comparability and additional insights into this pioneering type of investigation. The study would include analysis at the metropolitan level of image elements, such as

Professor Cherington anticipates that the results of the study will be presented in a monograph or other lithographed publication.

20. HISTORY OF BOSTON'S METROPOLITAN DISTRICT COMMISSION
Charles R. Cherington, Professor of Government, Harvard University

Professor Cherington has begun an analysis of the Metropolitan District Commission, the administrative agency with operating functions crossing separate boundary lines which has served as a prototype for both proponents and students of metropolitan integration. Although the MDC and its antecedent agencies have a history of more than 70 years, the agency has never been subjected to thorough critical study.

Professor Cherington has published a preliminary account of the MDC in Stephen Sweeney's Metropolitan Analysis (University of Pennsylvania Press, 1958). He proposes to extend this study to a monograph which will describe the life history of this agency and will assess its contributions in the field of urban government. He will examine the reports of the Commission and the record of official and unofficial comment on its activities throughout its career. The main research effort, however, will be spent in intensively interviewing those who have served with the Commission, or have been concerned with it in the Legislature and the metropolitan municipalities.

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Professor Lynch proposes a study of the image of the metropolitan region: how people see it, its functions, and how it may be clarified and strengthened by physical arrangement. The study would be conducted by Professor Lynch (an urban design specialist) and by a psychologist (specializing in perception). A sample of persons resident in some of the localities of the region would be interviewed intensively for the meaning they assign to various elements in the physical environments of the metropolis. The same research procedures would be followed as were employed in the earlier study, to give comparability and additional insights into this pioneering type of investigation. The study would include analysis at the metropolitan level of large elements, such as

paths, nodes, districts, edges, landmarks; the visual role of density patterns, visual sequences, the organization of nodal points, and the use of light, space, symbols, and natural features.

24. RESEARCH STUDIES ON MUNICIPAL MANPOWER
Robert C. Wood, Associate Professor of Political Science, MIT and
Vladimir V. Almendinger, Jr., PhD Candidate, Department of Government, Harvard University

1. Impact of Technology on the Manpower Requirement of Urban Jurisdictions.

Professor Wood is studying the impact of technology on urban structure, the organization of the municipal enterprise, and the provision of municipal services. The relationships between technological advances, growth, and patterns of demographic distribution are being considered, with particular attention being paid to the changing needs for municipal personnel.

2. The Ecological Dimensions of Municipal Manpower.

Mr. Almendinger is analyzing differences among U.S. cities in the patterns of demand for public services, in fiscal capacities, and in the structure of the municipal organization with a view toward identifying the key factors in the urban environment shaping the size, the program commitments, the rewards, and the incentives of public employment at the municipal level. The study embraces some 459 cities in the population range from 10,000 to 400,000, stratified into several samples by region and by size. Factor analysis, and, where applicable, regression and discriminant function models are employed in the analysis of a series of demographic, economic, and governmental indices.

25. PUBLIC WORKS PLANNING IN ILLINOIS
Jerome L. Kaufman
Preliminary findings are being formulated. Project to be completed Winter '60.
Bureau of Community Planning

Research Problem. To determine the nature and extent of public works planning, as well as the public and private groups responsible for making decisions on the use and development of public works within Illinois counties.

Previous Relevant Research. Previous research into government has focused on the operational aspects of government in the areas of law-making, administration, judicial review and the like. This research project focuses on a little-studied area of interest to the planning profession in Illinois -- what groups are making decisions regarding public works developments regardless of whether an official planning program exists or does not.

Method of Study. Readings in the Illinois Revised Statutes, readings on Illinois government, and interviews with informed persons.

paths, zones, controls, edges, determine the value and use of land, resources, visual impacts, the consideration of social problems, and the use of light, sound, energy, and material products.

Richard Carter, M. Arch., Instructor
Robert E. Wood, Associate Professor of Industrial Science, MIT and
Vincent V. Kimmelmann, M.S., Ill. Commerce, Instructor of Industrial
Arts, Ball State University

1. Impact of Technology on the Human Environment in Urban Communities

Instructor Wood is studying the impact of technology on urban communities, the consolidation of the manufacturing enterprises, and the centralization of industrial operations. The industrial-urban centers, technological systems, and patterns of transportation distribution are being considered with particular attention being paid to the dangers of the industrial problems.

2. The Ecological Dimension of Industrial Development

Mr. Kimmelmann is analyzing different ecological models which in the position of Israel for public services in industrial communities, and in the structures of the municipal organizations with a view toward establishing the impact in the urban environment among the cities, the regional relationships, and the industrial development, public amenities, and the physical level. The study concerns some of the cities in the population range from 10,000 to 100,000, emphasizing the central matrix of relationships by cities. Factor analysis, and linear multivariate regression multivariate function analysis are employed in the study of a series of demographic, economic, and governmental variables.

3. PUBLIC AFFAIRS RESEARCH, ILLINOIS

Director: L. Harmon
Principal Faculty Participants: [illegible]
Director [illegible]
Bureau of Community Planning

Activities: [illegible] in Southern Illinois of public [illegible] work [illegible] and the public [illegible] project [illegible] for [illegible] development of public [illegible] Illinois [illegible].

Principal Research Projects. Research focused into conditions for focused on the specialized aspects of government in the areas of law-making, administration, political theories and the [illegible]. The research project focuses on a [illegible] of Illinois [illegible] in public [illegible] in Illinois -- with [illegible] public works [illegible] of [illegible] program evaluation [illegible].

Methods of Study. Reading in the [illegible] Review [illegible], reading on Illinois [illegible], and [illegible] with [illegible] persons.

Major Findings. Over 25 different types of governmental units may conceivably be involved in the making of planning decisions regarding public works developments in Illinois counties. Therefore, power to make planning decisions is quite fragmented and diffused. The State, through a variety of fiscal, administrative, and legislative controls exercises the most significant influence over such planning decisions. Yet the State is not effectively channeling its resources and often duplicates or overlaps with the efforts of other units of government.

The county is a relatively weak unit, neither oriented nor equipped to make effective planning decisions regarding public works.

Over 65% of all funds expended on new or improved public works in the State annually are for schools and highways. In addition, over 70% of the annual capital outlay on public works in the State is spent in only 10 counties, or 10% of the total number of counties in the State. (JLK)

26. COUNTY ZONING ADMINISTRATION IN ILLINOIS
George T. Marcou and Felix C. Rodgers
In summary stage. To be completed in Spring, 1960
Bureau of Community Planning, University of Illinois

Previous Digest report: None

Research Problem. To investigate the practical day-to-day operation of county zoning in Illinois, and to determine factors enhancing or deterring its effectiveness in various type counties, in the light of theoretical and legislative concepts of this planning tool.

Previous Relevant Research. Previous research has concentrated on the progress and effectiveness of zoning in isolated counties, or has simply listed zoning permission and acceptance. Most pertinent articles are theoretical espousals of zoning as a necessary tool.

Method of Study. Interview schedules governing all pertinent facets of administrative procedure were administered personally to the zoning enforcing officers of the 14 Illinois counties where zoning had been practiced for at least one year.

Major Findings.

1. There is a tremendous range between counties in the effectiveness of county zoning administration, and little conformity of administrative practices. In only a few of the fastest urbanizing counties, with combined building and zoning departments, are there sufficient staffs and budgets to carry out an adequate operation. In many cases, zoning administration is a farce, with violations often checked only on complaint of citizens.

[illegible]

[illegible]

[illegible]

2. The chief zoning administrators are political appointees. Few zoning officers or members of the Zoning Boards of Appeal have any knowledge of planning. Decisions are made piecemeal, without the benefit of a comprehensive plan.

3. Attempts are made in most counties to raise fees in order to have zoning "pay for itself." There is much reluctance to incur general expenses to accomplish the intended regulated growth.

4. In counties with more assiduous administration, 2/3 to 3/4 of exception appeals are granted; in more loosely administered counties, virtually 100% are granted.

5. Opposition to county zoning is more outspoken than organized support. It centers largely in specific interest groups, particularly farmers with prime development land, outdoor advertisers, and municipal governments.

6. There is a need to re-examine county or rural zoning from the enabling legislation (which puts crippling limitations on its effectiveness as a method of land use control) to administration. (GTM)

27. THE EFFECT OF TRANSPORTATION UPON CENTRAL CITY LAND VALUES
Ronald L. Racster, Department of Finance
University of Illinois
(Supervised by Prof. R. O. Harvey)
Expected completion date: February, 1960.

Previous Digest report: None

Research Problem. Opinions have varied greatly as to the future of the central business district. It is recognized that a major influence in determining the prospects of land values in the central city is transportation. The study will be an attempt to assess the effects of transportation, traffic, and parking upon the business district to empirically establish principles and to verify existing hypotheses.

Method of Study. A library research project will be conducted to summarize and to synthesize the many empirical studies concerned with the effect of freeways, highways, streets, traffic characteristics, public transportation facilities, and parking upon land values in the central business district. The results will be compared with the theories of urban land values as they have evolved to the present. (RLR)

28. MEASURING CAPACITIES OF REAL ESTATE FIRMS TO TEST FOR OPTIMUM ORGANIZATION
Ron Grayheck (under the direction of Robert O. Harvey)
Department of Finance, University of Illinois
Research began September, 1959, with completion scheduled for June, 1960.

Previous Digest report: None

[illegible]

2. The [illegible] administrators are political appointees. Per [illegible] offices or members of the zoning boards of appeal. They are knowledge of planning. Formulas are rule-processed, without the benefit of a comprehensive plan.

3. Attempts are made in such counties to raise fees in order to have zoning "pay for itself." Inspectors with reductions in force generally are accomplish the intended regulated growth.

4. In counties with more resources and/or [illegible], [illegible] or [illegible] supervisor are provided, in more formally-structured [illegible] [illegible] are provided.

5. Opposition to county zoning is more prevalent when organized support. It centers largely in specific-interest groups, particularly farmers with prime developable land, outdoor advertisers, and [illegible] governments.

6. There is a need for more effective county-municipal coordination [illegible] [illegible] (which place overlapping limits upon the effectiveness of municipal officials and control) [illegible]. (end)

II. THE EFFECT OF [illegible] ON RURAL AND SEMI-RURAL AREAS

Donald [illegible], Professor of Finance
University of Illinois
(Summarized by Prof. [illegible] H. Harvey)
Expected completion: February, 1960.

Previous Direct Support: None

Research Problem. Optimum have varied greatly as to the effects of the current business climate. In [illegible] research this problem [illegible] is determining the prospects of [illegible] in two [illegible] in [illegible]. The study will [illegible] to assess the effects of transportation, [illegible], and [illegible] upon the [illegible] [illegible] [illegible] and to [illegible] the many [illegible] [illegible] with [illegible] of [illegible], highways, schools, [illegible], public [illegible], [illegible], and [illegible] land values in the [illegible] business district. The results will be [illegible] with [illegible] [illegible] as they have evolved to the present. (end)

III. [illegible] MANAGEMENT IN RURAL REGIONS PRIOR TO THEIR [illegible] [illegible]

[illegible] (Mrs.) [illegible] of Economics, [illegible]
[illegible] of Finance, University of Illinois
Research begun September, 1957, with completion scheduled for June, 1960.

Previous Direct Support: None

Research Problem. To investigate the internal executive structure of the small real estate brokerage firm in order to approach its optimum organization. The project will tend toward the solution of the degree and number of primary real estate functions in which any given business may participate.

Hypotheses. (1) That the generally small size of real estate businesses and high degree of transientness of its members indicates an organization unawareness. (2) That better organization means better business, from the standpoint of both services rendered and profits received.

Method of Study. (1) A preliminary study of the three counties (Lake, Will, and DuPage, Illinois) to identify the main problems and weaknesses of the real estate industry in that area. (2) A more comprehensive study based on a statistical field survey to pinpoint particular business areas of weakness and/or neglect. (3) An assemblage of the mateirals and data accumulated to assist in the formulation of a Pro-forma real estate business.

Major Findings. The project has not advanced beyond the inventory stage. (RJG)

29. FACTORS INFLUENCING LAND DEVELOPMENT PATTERNS: AN INVESTIGATION OF THE RELATIONSHIP BETWEEN THE LOCATION OF RESIDENTIAL SUBDIVISIONS, MAJOR HIGHWAYS, AND INDUSTRIES IN GUILFORD COUNTY, NORTH CAROLINA
Marilyn Nelson (under direction of F. Stuart Chapin, Jr.)
Master's Thesis in Department of City and Regional Planning, University of North Carolina, Chapel Hill, in cooperation with Urban Studies Program, Institute for Research in Social Science. Completed July 1959; available on Inter-library Loan.

Previous Digest report: None

Research Problem. The purpose of this study was to examine the influence of major highway and industrial locations upon patterns of residential subdivision activity. The study was premised on the hypothesis that the locations of certain elements in an urban area serve as structuring influences in the determination of the total land development pattern by altering the spatial relationships among interdependent units of urban activity.

Major Findings. At this stage of research, our knowledge of the factors affecting land development patterns is so meager that an effort to study the influence of one or two in isolation must, of necessity, be incomplete. Depending upon the purposes for which the analysis is needed, there would seem to be at least two approaches to this problem which merit attention. The first of these requires a conceptual framework which allows the simultaneous analysis of a large number of variables. Limitations in quantifiable data have prevented the widespread use of this technique for small area analysis. Recorded subdivisions,

[illegible]. To investigate the interdisciplinary [illegible] of the small-scale [illegible] exchange film in order to [illegible] the [illegible] organization. The project will test [illegible] the [illegible] of [illegible] in which an [illegible] participants.

Hypothesis. (1) Given the [illegible] of real-[illegible] based [illegible] of [illegible] of [illegible] is of [illegible] involved [illegible] organizations [illegible]. (2) That between [illegible] and [illegible] members, from the [illegible] of both [illegible] removed and [illegible] removed.

Design of Study. (1) A preliminary study of the three [illegible] (Lake, Hill, and [illegible], Illinois) to identify [illegible] problems and [illegible] of the [illegible] in that area. (2) A [illegible] study based on a statistical field survey to [illegible] particular [illegible] of [illegible] and/or a place. (3) An [illegible] of the [illegible] and data [illegible] to [illegible] in the [illegible] of a [illegible] real estate [illegible].

Major Findings. The project has not advanced beyond the [illegible] stage. ([illegible])

[illegible]

Research Problem. The purpose of this study was to examine the influence of a [illegible] and [illegible] on patterns of [illegible] individual [illegible]. The study was [illegible] on the [illegible] that the [illegible] of [illegible] in an urban [illegible] as [illegible] influence on the determination of the [illegible] land development [illegible] by stating the spatial relationships among [illegible] [illegible].

Major Findings. As this stage of [illegible], [illegible] on the [illegible] land development patterns is a major [illegible] to study the influence of [illegible] in the [illegible] [illegible] [illegible]. Depending upon the [illegible] for which [illegible] is needed, there would seem to be at least two approaches to [illegible] which might [illegible]. The first of these involves a [illegible] [illegible] which [illegible] the [illegible] analysis of [illegible] [illegible]. Limitations in quantifiable data have given rise to the [illegible] use of [illegible] techniques for small area analysis. [illegible] [illegible].

which were used in this study as a dependent variable, provided only a very rough measure of patterns of residential development. In addition, because residential development in a given portion of the urban area seems to be importantly influenced by the quality of nearby development, the location pattern of subdivisons itself may also function as an independent variable in influencing subsequent development. The problem of analyzing the specific influence of any hypothesized priming action, or combination of priming actions, within a single metropolitan area remains to be solved.

A second approach is to reduce the total number of variables involved, if it is sufficient to predict the combined effects of a whole range of variables over a fairly wide area. Percentage of developed land or population density have been used in land use models. The implications for land use planning and for the formulation of adequate land use controls may be quite different in these two approaches. If it is possible to isolate the influence of a single variable upon land development patterns, it may be possible to achieve desirable modifications in development through control of the location of these elements. If, on the other hand, it is possible only to estimate the combined effects of all variables upon the over-all pattern of development, it may be necessary to exercise regulation over the effects (the broad pattern of development) rather than over the causes (priming actions). (FSC)

30. INDUSTRY AND CITY GOVERNMENT: A STUDY OF NEW INDUSTRY IN TEN NORTH CAROLINA CITIES
Ruth L. Mace

Status of research and publication:

The study is approximately two-thirds complete. Field research, which extended over a period of about a year and a half, has just been terminated. Statistical analysis of the first of three interview series has been completed. Remaining are analyses of the second two interview series, interpretation of the findings, and preparation of the final report which will be published in book form. Expected publication date, late summer or fall 1960.

Agency conducting the project:

This study is part of the urban research program of the Institute of Government of the University of North Carolina under a grant from the Ford Foundation. It is related to the Urban Studies Program of the Institute for Research in Social Science of the University of North Carolina which is also being supported by a Ford Foundation grant.

Previous Digest report: None

Research Problem. To measure the extent to which city government policy, primarily with respect to the provision of basic municipal services, has affected the recent (1953-1958) location of industry in ten North Carolina cities, and the impact of this new industry on the cities studied in terms of increased service demands.

[illegible]

Previous Relevant Research. The years following World War II have seen numerous studies of factors influencing the location of industry. While city policy and city services have occasionally been mentioned, to the knowledge of this writer, no detailed examination of these elements as industrial location determinants has been undertaken prior to the project described in this abstract.

Method of Study. The study focuses on industrial location experience and municipal services in ten North Carolina cities during recent years. The nature, size and location of all new industries which located in these cities during the 1953-1958 period were identified. On the basis of this information three separate sets of interviews were conducted: (1) interviews with industrialists in 160 plants in the ten study cities; (2) interviews with private local industrial development officials; and (3) interviews with city officials (managers, planning directors, and public works directors).

Major Findings. Analysis has not proceeded to the point where major findings can be reported.

During various phases of this study the following members and former members of the Institute of Government staff participated in the research: Annette Anderson, George H. Esser, Jr., Douglas Gatlin, Philip P. Green, George C. Hemmens, Robert Stipe, and Warren J. Wicker. (RLM)

31. MINIMUM STANDARDS FOR DWELLINGS
J. F. Brown, Study Director
Ontario Department of Planning and Development and Central Mortgage and Housing Corporation.
The study is expected to be completed within 18 months. Staff and facilities have already been allocated for the research involved, the costs to be borne jointly by C.M.H.C. and this Department. Objectives are:

(1) to produce a "model" set of minimum standards affecting the occupancy and maintenance of dwellings, and
(2) to develop study techniques of general value to other provinces wishing to study this or similar subjects on an individual provincial basis.

The study originated in the growing national concern over problems of blighted urban areas. The high cost - in social and financial terms - of correcting or arresting urban blight through clearance and reconstruction has focused attention on remedial and rehabilitation measures. It is recognized that a number of agencies - provincial and municipal - have authority and discretion to enforce existing by-laws and other programmes relating to occupancy and fitness of dwellings, but in most cases by-laws and provincial statutes have, of necessity, attacked the problem in a piece-meal fashion. The present study, therefore, is an attempt to provide a model code of fitness and occupancy which can be applied to a wide variety of physical situations. Problems of administration and enforcement will be a major part of the study.

[illegible]

Such a study necessarily involves many fringe activities and interests, including building design and structure, zoning, civic improvement programmes, legal agencies, social work, tax law and others. Although these fields cannot be examined exhaustively, it is hoped that more than passing attention will be paid to them during the course of the study as well as in the final report.

32. A PROPOSED NAVIGABLE WATERWAY FOR THE WABASH AND MAUMEE RIVERS
Paul D. Cribbins (under the direction of K. B. Woods)
Purdue University, School of Civil Engineering
Ph.D. Thesis May 1959. Publication of a Purdue University Bulletin in process. Available about May 1960.

Previous Digest report: None

Research Problem. The purpose of this investigation, a preliminary study of the problem, was:

1. To determine whether or not a navigable waterway between the Great Lakes and the Mississippi River systems via the Wabash and Maumee Rivers is feasible.

2. To determine the optimum location and design of the waterway from an engineering standpoint.

3. To coordinate the various phases of the waterway into a multiple-purpose project.

4. To estimate the average annual tonnage of various commodities that might move over the waterway during the life of the project.

5. To ascertain the many other benefits which might accrue to such a project.

6. To calculate the benefit-cost ratio so as to determine if the construction of the project would be economically justified.

Method of Study. A thorough study was made of all available waterway studies which had been conducted of this area and of those major factors and elements which affected the location, design and multipurpose use of the waterway. The benefits accruing from the multipurpose use were estimated and compared to the estimated cost of the project.

Major Findings. The project was found to be feasible and to have benefits in the areas of power supply, domestic and industrial water supply, stream pollution abatement, irrigation, recreation, fish and wildlife conservation, and transportation. The value of these benefits were found to exceed the costs of the waterway by a very favorable margin and construction of the project is recommended. (HLM)

33. USE OF THE ELECTRICAL FIELD THEORY IN PREDICTING POPULATION MOVEMENT
Robert T. Howe (under the direction of H. L. Michael)
Purdue University, School of Civil Engineering
Ph.D. Thesis, May 1959

Previous Digest report: Item No. 44, Volume 4, No. 2, November 1957

Research Problem. See previous Digest report.

Method of Study. This study attempts to synthesize an origin-destination survey by assuming that each type of land use may be simulated by a center of positive electrical charge, while each human being may be represented by a unit, negative, electrical charge. Using these assumptions and the principles of electrostatic fields, three basic types of movement are developed in a simple hypothetical community. Two methods are created for solving one of these types of movement, that between places of residence and places of employment; the first method being theoretically justifiable, while the second minimizes calculations. The validity of the theory is checked by predictions of work-trip patterns in Lafayette, Indiana, and the standard metropolitan area of Cincinnati, Ohio, and these predictions are compared with the findings of recent origin-destination surveys in the two cities.

Major Findings. The work-trip desire lines evolved from this theory are usuable and similar to those derived from a comprehensive origin-destination survey. This approach also has the following three advantages:

(1) all of the data needed are generally available in public documents;

(2) with adequate zoning laws, this theory will permit the prediction of future travel patterns on the basis of assumed land uses, without any extrapolation from existing patterns; and

(3) the entire work-trip pattern for Greater Cincinnati was developed with about 600 man-hours of work, including about 50 hours of calculation time on a high-speed digital computer.

Problems in adapting this theory to the prediction of other types of trips are discussed, and several suggestions are made for possible solutions. (HLM)

34. ESTIMATION BY SAMPLE SURVEY METHODS OF HIGHWAY NEEDS FOR COUNTY PRIMARY ROAD SYSTEMS IN MICHIGAN AND MINNESOTA
Donald O. Covault (under the direction of Harold L. Michael)
Purdue University, School of Civil Engineering
Ph.D. Thesis, January 1959

Previous Digest report: None

Research Problem. The applicability of county primary road systems to sampling methods for the determination of highway needs was investigated as to:

1. The various types of sampling techniques which may be used to evaluate needs.

2. The methodology of the statistical approach to be used as applied to the highway needs problem.

3. The cost of the various types of sampling techniques which may be used.

4. The most efficient sampling techniques from the standpoint of the ease of gathering and processing data.

Method of Study. Complete county primary highway inventory data for the counties in Michigan and Minnesota were available and were utilized. Total needs as determined from these total inventories were compared with the total needs as found from samples of the same data. The cost of obtaining the samples in the field and of subsequent analysis for needs was considered of primary importance.

Major Findings. Results of this study indicated that sampling techniques were very useful and that from a practical standpoint, simple random sampling was very effective. Other techniques of sampling were also studied and their effectiveness is discussed in detail in the report. (HLM)

35. LAND USE DEVELOPMENTS AT FREEWAY INTERCHANGES
Edgar M. Horwood, Duane F. Marble, William L. Garrison
A progress report will be prepared March 1960 and the study will be completed March 1961.
U. S. Bureau of Public Roads is sponsoring the study by the Departments of Civil Engineering and Geography.

Research Problem. This study is designed to identify the land uses competing for sites in approach areas and areas adjacent to highway interchanges, traffic-generating characteristics of such land uses, the congestion caused by such land uses, the adequacy of present land use controls and further needs and possibilities of control over land developments at freeway approaches and highway interchanges.

Method of Study. The demand for sites for commercial, residential, and industrial development is being determined by observations of developments in freeway areas and by projections of data on urban land uses. The adequacy of land use planning and control devices is being determined by interviews and by related studies.

Previous Relevant Research. This research is a continuation of related research by the investigators. See previous issues of the Research Digest. (WLG)

[illegible]

Statement of Problem. The problem of study is [illegible] to computer methods for the determination of [illegible] was investigated as follows:

1. The various types of regulating structures that may be used in [illegible].

2. The adaptability of the mathematical approach to be used as applied to the regulating structure problem.

3. The cost of the various types of regulating structures which may be used.

4. The most adequate sampling procedure for obtaining data for the purpose of performing the preceding data.

Method of Study. Complete review of literature [illegible] data for the problems in hydraulics and hydrology were available for use [illegible]. Local means of distribution [illegible] were supplemented with the total [illegible] from the [illegible] data. The cost of constructing the regulating structures and of equipment analysis for these was considered of primary importance.

Major Findings. Results of this study indicated that adequate hydraulic data, using overall and local flow conditions, which [illegible] measure accurately and very efficiently. Other [illegible] of regulating structures should and their effectiveness is dependent in large [illegible] (Ref.)

2. IAMP: USE OF WELL FIELDS AS RESERVOIR MATERIAL FOR DAMS
Edgar H. Kennedy, James R. Morris, William E. Gardner
A progress report will be presented which lists and the study-all. [illegible] [illegible] (1961).
3. [illegible] Bureau of Public Roads is sponsoring the study by the Department of Civil Engineering and Geography.

Research Problem. This study is designed to identify the land area [illegible] for [illegible] areas and areas exposed to adverse way influences, quantitative characteristics of each land area, the [illegible] to such land areas, the adequacy of present land use [illegible] and [illegible] and possibilities of [illegible] land development of [illegible] approaches and [illegible].

Method of Study. The demand for [illegible] for commercial, residential, and industrial development is being determined by [illegible] of development in [illegible] and by [illegible] in [illegible] areas. The adequacy of land use planning and control [illegible] is being determined by [illegible] and by [illegible].

Previous Research Studies. This research is a continuation of research [illegible] the [illegible]. [illegible] of [illegible] Research Bulletin. (Ref.)

36. TOWARDS SOME DEFINITION OF PLANNING OBJECTIVES
Werner Z. Hiersch, Professor of Economics
Washington University
A first paper has been completed and is ready for publication.
The initial paper attempts to explore and define a city's better future, as discussed by Harvey S. Perloff in his "Education for Planning; City, State, and Regional".

Research Method. This is done by introducing the notion of a city's "Health and Well being," and by developing its five main dimensions--economic growth, economic welfare, basic employment stability and instability, net social benefits, and amenities of life. These dimensions are placed into a means--end framework, and related to the problems faced in city planning. In these dimensions special emphasis is placed on the relationship between the physical planner and the social scientist. Some thoughts about city planning, its foundation and scope in a free society are presented. (WZH)

# RESEARCH DIGEST

Sponsored by the
Urban Planning Research Group



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University of Illinois
Urbana, Illinois

William I. Goodman, Editor

Contents

1. LOCAL ORGANIZATION FOR URBAN RENEWAL
Investigators: George Duggar (author Volume I) with Pamela Ford (editor of Volume II), Bureau of Public Administration, University of California, Berkeley.

Previous Digest report: Volume 4, No. 1 (May, 1957)

Status of Research and Publication: Publication to date from this project: "Organization for Urban Renewal," Public Management (July, 1958), Vol. XL, pp. 158-63.
"Local Leadership for Urban Renewal," in Proceedings of the Western Political Science Association, 1958, The Western Political Quarterly (June, 1958), Vol. XI, pp. 363-7.
Urban Renewal Administration: Provisions in Redevelopment and Housing Statutes of Seven States (University of California, Bureau of Public Administration, 1957). (George Duggar and Pamela Ford)
"Urban Renewal Re-examined," in American Society of Planning Officials, Planning, 1957, pp. 209-17.

Publication: A summary pamphlet and a limited edition of Volumes I and II are proposed for 1960.

The problems, hypotheses and methods were previously described. The major findings include a suggested perspective for examining local organization for urban renewal. This perspective envisions that the local governmental organizations and other formal organizations participate in a common enterprise. The organization of the enterprise as a whole and not simply the structure of any one of the participants must be examined. The enterprise itself has been changing over the years, from redevelopment to renewal and now from renewal to citywide programs of urban development. There is some evidence that the more "executive" forms of local government organization within enterprises are accompanied by greater efficiency, but it is evident also that the more executive form is best suited to a situation in which there is substantial general agreement on the program or proved accomplishment and real public confidence. (GD)

2. COST-BENEFIT ANALYSIS IN CITY AND REGIONAL PLANNING
Nathaniel Lichfield
Real Estate Research Program, Bureau of Business and Economic Research, University of California, Berkeley
Preliminary drafts in process; final results expected to be ready for publication by September 1960.

Previous Digest report: none.

Research Problem. Research for this study falls into three parts:

A. The place of cost-benefit analysis in city and regional planning;

B. A method of cost-benefit analysis for general use in city and regional planning;

C. Examples to demonstrate the use of the method. Two redevelopmental schemes in San Francisco are being used for this purpose.

As a by-product, techniques are explored for comparing the housing welfare of people formerly residents in the Western Addition Redevelopment Area, San Francisco, before and after their relocation. (MB)

3. HOUSING FOR THE ELDERLY
Wallace F. Smith
Real Estate Research Program, Bureau of Business and Economic Research, University of California, Berkeley.
Research under way; one or more journal articles summarizing results of the study will be completed by July 1960.

Previous Digest report: none

Research Problem. This study has a two-fold aim -- the location of existing relevant information on housing of the aged in California and the identification of distinguishable market opportunities and community problems which exist in this area.

Method of Study. Data have been brought together from several sources, classifications have been established, and preliminary calculations have been made, estimating the number of elderly households in California who might be expected to buy rather than rent if they were to move to specially designed housing and estimating further the approximate numbers of subsidized low-rent units which would fully meet the needs of the existing population. Feasible price and rent ranges can also be indicated very roughly. (MB)

4. OPEN SPACE IN THE CHICAGO METROPOLITAN AREA
Gilbert F. White and Harold M. Mayer
Completion and publication expected early in 1961.
Department of Geography, The University of Chicago, under grant from Permanent Committee on Open Land

Previous Digest report: none

Research Problem: To determine the character, extent and pattern of open land in the Chicago Metropolitan Area, with particular reference to privately-owned open land which may be potentially available for conservation by easements, purchase by quasi-public agencies, or by other means which would preserve the open character of the land and at the same time permit its present use to continue; (2) to determine the rate of absorption of open land by urban uses in the Chicago Metropolitan Area and in selected other metropolitan areas, and (3) to compare the amount, character, and patterns of open land in selected large metropolitan areas.

Previous Relevant Research: Relatively little. Scattered studies, such as the recent ones of William Whyte and others, and general studies of "urban sprawl".

Hypotheses. The spread of urbanization, while increasing the need for preservation of open space, is making the task increasingly difficult. Much open space in private hands would resist subdivision and could remain in its present open type uses if the pressures toward more intensive use, as, for example, taxation based upon present use rather than upon appreciation due to urban pressures, could be removed. Parallel studies are exploring the legal steps that may prove feasible toward such ends. The present study is concerned with acquisition of the requisite knowledge as to the locations, ownerships, patterns, and rates of urbanization of the open space.

Method of Study. In collaboration with other agencies, including the Northeastern Illinois Metropolitan Area Planning Commission, which is conducting a parallel study concerned with both public open space and with public regulation of private open space, the study will include: (1) inventory and mapping of privately-owned open land in metropolitan Chicago, (2) comparisons of the locations and amounts of open land in metropolitan Chicago with those of other selected metropolitan areas, based upon land-use maps of the N.E.I.M.A.P.C. and other agencies in their respective metropolitan areas, and (3) from historical records, reconstruction of the patterns, amounts, and characteristics of open land in metropolitan Chicago at various times in the past, in order to obtain knowledge of the trends in the rate of absorption of open land by urban uses. (HMM)

5. BENEFIT-COST TRAVEL COST ANALYSIS

Main Investigators: Hyman Joseph and George Haikalis

Status of Research: Research is in progress with completion expected by June 1, 1960. Publication may be in a Highway Research Board paper at the January, 1961 meeting.

Agency Conducting the Project: The Chicago Area Transportation Study is conducting the project and is sponsored by the State of Illinois, Cook County, and the City of Chicago in cooperation with the U.S. Bureau of Public Roads.

Research Problem. As an aid in selecting an optimum highway transportation system for the Chicago metropolitan area the Chicago Area Transportation Study is currently conducting research in benefit-cost studies. The economic analysis of a system requires the estimation of the total capital requirements to provide the system and the total travel costs to its users. Current research at CATS is aimed at quantifying the system travel cost.

Study Approach. Earlier research at CATS indicated that a most useful parameter of motor vehicular travel costs is the daily average speed. Obviously time costs are related to this variable. Operating costs are related to speed in "Automobile Operating Costs" by Hyman Joseph, CATS Research News, Vol. 3, No. 4. Similarly accident costs show a definite relationship to speed.

A method for determining daily average speed is presently under study at CATS. Speeds will be based in part on the type of route, its capacities, daily traffic flow, and relative location in the Chicago Area. The relationship between volume, capacity, and daily average speed has been formulated.

Technique to be Used. The various highway transportation plans to be analyzed have already been prepared by CATS for its other studies. Available for economoc analysis are several 1980 system plans as well as the 1956 systems. Each system consists of a complex network of route segments upon which has been imposed a travel demand. The traffic loadings on each individual link represent a simulation of traffic that might be expected.

The economic analysis will consist of determining the travel cost on each individual link and accumulating the total travel costs for various analysis zones or areas. First the 1956 network will be assigned costs. If the results seem reasonable the cost functions will be extended to the 1980 systems and the optimal plan selected. (HJ, GH)

6. MAPPING THE POLITICAL CHARACTERISTICS OF MEDIUM-SIZE METROPOLITAN AREAS
Daniel J. Elazar
Research began January 1960. Research in one of the nine selected metropolitan areas completed. Reports to be issued for each metropolitan area with possible book length publication upon completion of the project.
Institute of Government and Public Affairs, University of Illinois.

Previous Digest Report: none

Research Problem. This project is designed to provide some basic information on the process of government and politics in medium size (100,000 - 250,000 population) metropolitan areas, primarily in Illinois. It is concerned with identifying the general characteristics of the electorates in such cities and their metropolitan areas; the character of the political parties and interest groups; the issues and problems confronting the cities and their civil communities; and the character of political conflict within them. It is not an attempt to study these cities exhaustively, but, rather, to gather as much data as possible in a brief study and arrange it analytically so as to present a political map of each civil community which will indicate its major political landmarks. In the course of the study the utility of the political mapping technique will also be tested. It is hoped that such political maps will be useful in (a) comparing American cities so as to uncover the patterns of city government and politics in the United States and (b) indicating areas and means for further research within the mapped cities themselves.

A problem in some way common to all the communities has been selected for more detailed study in order to test the reliability of the general survey and its applicability to specific situations. The problem selected is that of basic governmental and constitutional change in the metropolitan areas being surveyed during the decade of the 1950s.

In addition, a variety of relevant research materials made available from other research projects are being examined and arranged to develop political maps of smaller communities, for purposes akin to those of the larger research project.

Method of Study. An outline guide has been prepared to provide an inventory of information needed, a pattern by which to organize the data, and a series of fundamental questions to be raised in the course of the mapping. Prior to field work in each metropolitan area, written materials, published and unpublished are examined. A minimum of two and a maximum of three weeks are spent in each metropolitan area (except where there is more than one central city and more time is needed) to interview selected individuals, gather published data, and investigate local information sources. A file is then assembled and arranged to include the material gathered for future reference.

Major Findings. Several findings have emerged as a result of the completed research in Rockford, Illinois, and data from other communities. These will be subject to further investigation.

1. There is much value in identifying the "constitution" of the local civil community as the key to the local political system.

2. Local political upheavals seem to center on conflict between the newer-suburban-like areas in the city and the older areas.

3. While no single individual or group "controls" the city, numerous groups have the power of the tacit veto and concurrent majorities are necessary to make any changes in the status quo.

4. An intra-governmental "preclearance" system which operates between executive departments and legislative committees with responsibilities in the same fields of government provides the mechanism for setting policy and determining actions within each government. (DJE)

7. THE ST. LAWRENCE SEAWAY: ITS IMPACT, BY 1965, UPON INDUSTRY OF METROPOLITAN CHICAGO AND ILLINOIS WATERWAY-ASSOCIATED AREAS.
Joseph A. Russell, Jerome D. Fellmann, Howard G. Roepke, Alfred W. Booth, Department of Geography, University of Illinois.
Research Completed. Volume 1 published October 1959; Volume 2 to be published April 15, 1960.
Conducted under joint sponsorship of Chicago Association of Commerce and Industry and State of Illinois, Division of Industrial Planning and Development.

Previous Digest report: Volume 6, No. 1.

Method of Study. Existing manufacturing and non-manufacturing growth trends of the Chicago Metropolitan Area were extrapolated on the basis of component analysis. 1965 employment projections were used as a basis against which to compare the impact of St. Lawrence Seaway improvement upon Chicago Area's economy. Potential capacity of the improved St. Lawrence Seaway to deliver industrially significant

cargo to the Port of Chicago was carefully evaluated; potential new market areas and raw material sources were investigated.

Major Findings. Employment growth within the Chicago Metropolitan Area, without consideration of the impact of the St. Lawrence Seaway, is estimated to amount by 1965 to more than 250,000 workers above the 1957 employment levels; of these new workers some 57,000 will be in manufacturing. Employment growth attributable to the St. Lawrence Seaway improvement alone is estimated to amount to no more than 38,000 new workers by 1965; of these some 8,000 will be in manufacturing. More than 100 individual industry types were investigated and these have been summarized in six "growth prospect" groups: 1) industries in which a trend to growth may be accelerated by improved water transportation; 2) industries which may grow without reference to improved water transportation; 3) industries which remain stable in the Chicago area; 4) industries in which a trend to decline may be arrested by improved water transportation; 5) industries which may decline without reference to improved water transportation; and 6) industries which may decline because of improved water transportation. (JDF)

8. POLITICS AND COMMUNITY PLANNING
J. H. Bigelow; W. H. Form, major advisor
Ph.D. dissertation in social science. Probable completion sometime in 1961

Research Problem. An attempt will be made to determine the types of political interaction between planners and other politically significant sectors of the communities in which they work. The effects of this political process on the planning programs which they are able to carry on, and on the implementation of planning goals will be major objects of the study.

Method of Study. The research at present is still in the design stage. It is anticipated that a number of planning directors in medium to large size cities in Michigan will be interviewed in order to gain their insights into the political environment in which they work, and the effects it has on the planning they do.

9. AUTOMATED DATA MASTER PLANNING PROJECT
Richard D. Duke and Claude Coats
Publication Data: Research is still in progress. It is hoped that publication will result in the summer of 1960. Publication will be in bulletin form as published by the Institute. It is possible that two publications will result: (1) a report of Publication Data: (continued)... master planning for citizens and (2) the report on the use of automated data processes.

Research Problem. Basic purpose of the project is to find a suitable system for utilizing automatic data processing methods in land use planning.

Method of Study. Information was collected in a form to fit pre-coded classifications which could then be readily transferred to IBM cards. The city itself was divided arbitrarily into a grid system. All parcels were located by code numbers in one of the given grids, thus making it possible to make data runs on some portions of the city as well as for the city as a whole.

Findings, if Completed. Preliminary IBM runs have been utilized by a senior master planning class in a class subject. At the present time, additional runs and refinements in the data processing, are being worked on. There are no substantial findings available at this date.

10. EFFECTIVENESS OF ADULT EDUCATION METHODS IN RELATION TO THE CHARACTERISTICS OF THE COMMUNITY WHERE THEY ARE UTILIZED
E. Alchin and D. Seifer
Publication Data: Possible Institute Monograph -- date as yet uncertain

Research Problem. The efficient use of adult education methods and techniques is essential if the professional is to be most effective as a change agent in community development. At the present time, there are a multitude of ideas as to what is effective and what is not effective. There seems to be a continuing search for the "magic formula" means of bringing about change. For every adult education concept, educators have their own interpretation of its meaning and use. All too often, the method is seen as the end rather than the means. The development of an effective educational approach would seem to logically depend upon the kind of problems, kinds of local leaders involved and their level of understanding of community needs, the extent to which a crisis situation exists, the amount of conflict existing within the community, the means of communication that exist, the nature of the social organization within the area or municipality and other factors.

Method of Study. It would appear necessary to the problem that the findings as to the nature of the environment to be dealt with could help in deciding the educational methods and techniques that might be applied to bring about change. The means of testing the effectiveness of various Adult Education methods and techniques could perhaps best be done by developing some combinations of methods and varying the combinations so as to test the effectiveness of various methods under similar community circumstances. A major problem will be to find such similar circumstances. Still another methodological problem will be to develop devices for measuring effectiveness.

11. A METHOD TO IDENTIFY THE SOCIAL, PHYSICAL AND ECONOMIC CHARACTERISTICS OF AN AREA OR MUNICIPALITY
E. Alchin and J. Bigelow
Publication Data: Possible Institute Monograph -- date as yet uncertain

Previous Digest report: none

Research Problem. The professional interested in bringing about change to improve conditions within an area or municipality usually experiences a considerable time lapse from initial contact with local leaders to the point of gaining acceptance and starting action. The need to identify leadership and their understanding of community needs; to identify and understand barriers and conflicts which must be dealt with within the community; to anticipate major problem areas that are to be found, and to gain access to the social organization are essential if the professional is to make effective use of his time and energy.

Method of Study. A set of instruments which might give the necessary insights into the community environment could be developed utilizing observation of physical conditions, collection of limited general data (census, state agency, etc.) and some data from local sources, and the use of an open ended interview with a limited number of leaders selected upon the assumption that they would (a) have useful information and (b) reflect values and beliefs of the general citizenry. The jobs to be done include (1) development of instruments and techniques for their use (2) selection of the data to collect and (3) selection of types of local leaders to interview. All three of the above may vary with size of community. If it is possible to carry through these three steps then the testing of the effectiveness of the instruments could be accomplished by administering them before starting educational activity within a community and checking the findings against the experiences and results encountered in carrying through a change effort within the community based on these findings.

12. THE CONTROL OF MANUFACTURING ESTABLISHMENTS IN THE U.S. (1954): A STUDY OF DOMINANCE IN INTER-COMMUNITY RELATIONS
Baron Moots
Publication Data: Projected date: October 1960. Ph.D. dissertation University of Michigan, Ann Arbor

Research Problem. The description of control of mfg. establishments with major emphasis on the pattern of inter-community relationships. Structural characteristics of the productive systems will be explored as possible sources of independent variation in the pattern of control. Included among these characteristics are specialization of communities, distance between communities and similarity of productive functions between communities.

Method of Study. Simple probability models will be used to describe the pattern of inter-community control. Types of communities will be evolved utilizing the results of this description in conjunction with the structural characteristics of the system of production. Paired relations, with communities as units, will be analyzed with respect to these characteristics in an effort to undercover the basis for emergent types.

13. COMPARATIVE STUDY OF WHITE COLLAR AND BLUE COLLAR SUBURBAN DEVELOPMENTS
W. Freeman and various graduate students
Publication Data: Indefinite

Previous Digest report: none

Research Problem: It has been theorized that ecological variables will serve to differentially locate individuals of like income but of different occupational status, to the end that a blue collar suburban development will be distinguishable from a white collar suburb by location, though housing costs will not vary widely. The blue collar location will be closer to factories and other places of employment, which in turn are differentially located from the locus of white collar employment. This assumption will be tested in two areas which have been selected in the Lansing, Michigan, area. Following this, a number of sociological variables will be measured to see what other significant similarities or differences exist in the life styles of the two areas.

Method of Study. Survey techniques, involving a sampling of each of the two areas, and intensive interviewing will be the main sources of necessary data.

14. A STUDY OF HOSPITAL-COMMUNITY RELATIONS
W. Freeman and J. Artis
Publication Data: Final report due September 1, 1962.
Sponsors: Social Research Service, Dept. of Sociology & Anthropology, financed by grant of U.S. Dept. of Health Education and Welfare

Research Problem: (1) to determine and describe the relationships which exist between the hospital and the community; (2) to establish typologies of hospital-community relationships based upon the range of relationships found between the hospital and its community; and (3) to determine the organizational and attitudinal correlates of specified types of hospital-community relationships.

Method of Study. The first year the research group will examine hospital-community relationships, choosing and classifying those which appear significant. On the second year and succeeding years, the staff will scrutinize selected hospitals and compile a series of case studies. Scheduled for study are the sociological aspects of hospital financing and building program; and the roles of auxiliary organizations, volunteer and part-time hospital workers, aides, nurses, doctors, administrators, and civic and governmental agencies.

15. COMMUNITY TYPOLOGY BASED ON A SCALE OF ADJUSTMENTS AND VALUES
K. Hereford and F. Vescolani
Publication Data: Will be published as an Institute monograph, probably in summer or fall of 1960

Previous Digest report: none

Research Problem. The index of adjustment and values used is an effort to transfer from the psychology of the individual to the sociology of the community the concepts of acceptance of self and of others, or lack of same. In order to do this, and also to account for the influence on the community if its major institutions and leaders, it was necessary to determine them, as well as utilize the value scale instruments with a stratified random sample of community population as a whole. Upon using the instruments, which have now been tested in two other communities besides the one in which and for which they were originally developed, it is possible to locate communities in terms of their acceptance of themselves, positive or negative, and their acceptance of other communities. Strong, deeply held values, not easily subject to change, but possibly providing a base for change agents to operate from can be distinguished from superficial, more easily changed community values.

Method of Study. Research techniques used were sample survey techniques plus leadership delineation studies based on the self-nominating technique. A sophisticated research design, including scaleable value measurement devices has allowed the use of refined statistical tests as to the significance of data and findings.

16. LOCAL GOVERNMENT DEBT IN MICHIGAN
A. L. Edwards
Publication Data: Manuscript now completed in draft form. Will be published as Institute bulletin, probably this summer.

Research Problem. Study attempts to determine the debt of Michigan cities, counties, townships, and school districts, as compared and contrasted to each other by size, and as compared to national debt statistics. In order to better understand the burden of debt of these units of government, the author applies an index of economic ability, based on a three part Federal census index, as well as an index of equalized property valuation.

Method of Study. Statistical study, based on census figures and Michigan Municipal Finance Commission statistics.

Findings, if Completed. Debt in Michigan is not out of line with that of other states and local governments. Trend to employ revenue bonds is likely to continue. Increased service demands in urbanized and urbanizing areas incurs costs which are great enough to require long term financing -- this must be administered carefully. To determine with any degree of precision the amount of debt which a city can safely incur is almost impossible.

17. HISTORY OF CITY GOVERNMENT -- VOL. II
Charles R. Adrian and Ernest S. Griffith
Associate: Barbara Luther

Research Problem. This will be the second of a three-volume history initiated by Frank S. Griffith of the U.S. Library of Congress. It will cover American city government for the period 1790-1870. Among the topics to be covered are the following: The Revolution and transfer of political power to those on the winning side; Post-Revolution: The rise of legislative supremacy; Frontier influence on urban politics; the expansion of the electorate; the municipal campaign under universal suffrage; the revolt against special legislation; the requirement of general legislation; relations of the municipalities with the states; the expansion of older urban functions; the assumption of new urban functions; finance; executive and legislative patterns -- use of boards and commission; personnel politics; municipal corruption and its social environment; the early cry for reform; the quality of government -- overview; a survey of trends and changes.

Findings, if Completed. Study will be conducted by the usual method of survey of pertinent literature and appropriate historical documents, newspapers, etc.

18. PUBLIC AUTHORITIES IN MICHIGAN
A. Edwards and C. J. Joiner
Publication Data: Late 1960 or early 1961. Monograph

Previous Digest report: none

Research Problem. Public authorities in Michigan. Their effectiveness and over-all efficiency as alternatives to regular governmental financial arrangements and administrative organization. Their organizational arrangements, public accountability, autonomy, indebtedness, service charge and other financial arrangements, technical competence of employees, etc. Political process aspects of their creation, operations, finances, relations with community, and relations with units of government.

Method of Study. Questionnaires, personal interviews, analysis of reports, etc., observation of operations, comparison with public authorities in other states.

19. NEW ROLE FOR TOWNSHIPS
Kenneth Verburg
Publication Data: Submitted to National Civic Review

Previous Digest report: none

Research Problem. To trace the historical advance in legal authority given to townships, inquire into the patterns of incorporation since 1909 and the annexation patterns during the last decade.

Method of Study. Dependent largely upon the research findings of the comparison of city and township powers but also upon the Municipal Year Book and the Michigan Manual.

Findings, if Completed. Townships appear to be assuming the role usually assigned to villages, i.e., providing a minimum number of urban services and guiding the physical development of an area during the developmental stages.

20. FOUR-CITIES STUDY OF LOCAL POLITICAL PROCESS
Oliver Williams and C. R. Adrian
Publication Data: Hope to have manuscript ready by summer of 1960.

Previous Digest report: none

Research Problem. Interested in the size of city as a variable in determining the character of the local political process. What are the general political characteristics of the middle size city is the initial focal point of the research.

A second phase would be concerned with the use of a typology of images of the purpose of the local government. This typology to be used as an analytical tool in characterizing differences in community response to similar problems.

Method of Study. An institutional study of the decision-making process focusing on elections, city council administration, and interested group activity. Data has been gathered from newspapers and interviews with community notables. In addition, a scaleable questionnaire will be given to a citizens leadership panel to objectively verify the typology.

21. NATURE IN THE METROPOLIS
Main Investigator: The author, Dr. William A. Niering, is Associate Professor of Botany and Assistant Director of the Arboretum, Connecticut College, New London
Status of Research: The manuscript is being prepared for publication and will be published May, 1960.
Agencies Involved: NATURE IN THE METROPOLIS is the third of four publications of the Park, Recreation and Open Space Project, a joint effort of Metropolitan Regional Council and Regional Plan Association, Inc.

Research Problem. This study is an attempt to bring to the attention of public bodies at various levels the need for conservation as a part of future developmental policies and programs.

Hypotheses. In natural communities, ecologists observe a certain harmony among various members -- an ecological balance. If this equilibrium is seriously disturbed there results a stress which, if prolonged, may be so unfavorable as to eliminate certain elements of the community, and in turn threaten the survival of the whole. This balance is not restricted to natural communities alone but its principles also operate within our man-made communities or municipalities, as artificial as they appear.

Method of Study. The Park, Recreation and Open Space Project surveyed the existing supply of park, recreation and conservation lands in public and private holdings and has singled out areas of special scenic appear for preservation. The Project has been assisted by county, state and local officials and 100 members of the National Audubon Society.

Major Findings. Conservation is needed for several reasons: for watershed and flood control purposes; to protect the Region's Fin-fish -- Shellfish Resources; for the protection of waterfowl on the Atlantic Flyway; for educational, scientific and aesthetic purposes; and for molding our youth, the citizens of tomorrow. With the tremendous rate of development occurring in the New York Region, we are, more than ever in need of framing a program to capture and preserve essential conservation areas. Such areas include watershed lands, interior wetlands, permanent waters, coastal wetlands, educational and recreational areas, regional parks and wilderness areas, natural areas, hunting and fishing lands, scenic areas and agricultural lands. The several levels of government, industrial organizations, business groups and citizens groups must all play a role if long range needs are to be met. (HQ)

22. THE RACE FOR OPEN SPACE
Main Investigators: Staff of Park, Recreation and Open Space Project
Status of Research: Research is complete, and the final report is being drafted.
Agencies Involved: THE RACE FOR OPEN SPACE is the last of four publications of the Park, Recreation and Open Space Project, a joint effort of Metropolitan Regional Council and Regional Plan Association, Inc.

Research Problem. To measure the existing supply of open space and recreation areas in the New York Metropolitan Region; to express the demand for future recreation space in terms of needed acreage; to offer its program for preserving adequate open space in this era of unprecedented metropolitan expansion; and to suggest action for local, county, state and federal governments and for private groups.

Previous Relevant Research. THE RACE FOR OPEN SPACE draws heavily on the three consultant reports preceding it. Their findings and recommendations have been incorporated into the final report along with relevant data from other sources. The project inventoried the existing publicly-owned school and non-school properties in the Region's 550 municipalities. The inventory covered type of area, acreage, facilities available and activities conducted. An inventory was also conducted of all county and state parks in the Region. Data included date of acquisition, acquisition costs, attendance figures, type of development, activities engaged in, etc. Separate surveys measured the number of golfing and boating facilities in the Region. At key facilities, the Project also determined where users came from and the time spent in traveling to various type facilities.

Hypotheses. The objective of the Project is to help meet the growing need for open space in the 22-county Region by providing necessary data and developing recommendations which will be useful to governmental and other agencies having the responsibility for the acquisition and preservation of parks and other open land.

Major Findings. The Project has not, as yet, reported its major findings or recommendations, though much of the material presented in the preceding three volumes will be incorporated in the final report. (HQ)

23. ECONOMIC INTERRELATIONS IN THE PIEDMONT INDUSTRIAL CRESCENT
Ralph W. Pfouts, Eugene A. Thomas and Franklee Gilbert Whartenby
Urban Studies Program, P. O. Box 1167, Chapel Hill, N.C.; March 1960. $1.00.

Previous Digest report: none

Research Problem. An investigation of the "polynucleated metropolitan area" concept through tests of the extent of economic integration among the cities of the Crescent as measured by the flow of commodities hauled by trucks, by long distance telephone calls and by the locus of charge account customers of the principal department stores.

Major Findings. The results suggest that a marked degree of economic interaction exists between the Crescent cities. The evidence is stronger at the pre-retail level than at the retail level. The coefficients of attraction (based on a gravity model) indicate a substantial amount of interaction for the trucking data. The coefficients do not vary greatly from city to city, suggesting that the area is relatively homogeneous with respect to economic interaction and consequently can be thought of as an integrated area. No one city dominates the area as Charlotte does in the retail trade data. In summary, the economic interactions are found to be "strongest in wholesale and industrial trade, rather surprisingly strong in retail trade, but not strong at all for the socio-economic area presented by the telephone call data." (FSC, Jr.)

24. DEMAND FOR HOUSING IN RACIALLY MIXED AREAS
Chester Rapkin and William G. Grigsby
Status of Research and Publication: Completed and pending publication in the summer of 1960.
Agencies: Sponsored by The Commission on Race and Housing and the Philadelphia Redevelopment Authority, to be published by the University of California Press

This study is concerned with market processes in areas that are affected by racial change. It investigates such questions as the number and type of white families that will buy in racially mixed areas, the effect of the change on house values, and institutional and social forces which accelerate or retard change. It also is concerned with the likely future of areas of this sort in our larger cities. (CR)

25. LAND DEVELOPMENT PROBLEMS AT FREEWAY INTERCHANGES

Main Investigators: William L. Garrison and Edgar M. Horwood, University of Washington; and Duane Marble, University of Pennsylvania

Status of Research and Publication: This is part of a two-year research project of which the first year's work has been completed. A hundred-page mimeographed progress report has just been released to the sponsors, but unavailable for general circulation. It is expected that the final report will be a limited edition manuscript transmitted to the sponsors. Subject to release by the sponsors, the results will be made available for publication in book form, in either one or two volumes.

Previous Digest report: Vol. 6, No. 2.

Research Problem. This is a study of activity and projected activity in the vicinity of freeway interchanges and approaches. It examines both the availability and demand for sites at these locations as well as existing public policy and controlling land at these locations.

Previous Relevant Research. Two volumes undertaken by the same authors: 1. Studies of Highway Development and Geographic Change, and 2. Studies of the Central Business District and Urban Freeway Development, University of Washington Press, 1959.

Hypotheses. 1. It is meaningful to study the balance between the supply of urban land at different locations and demands for that land. A knowledge of these factors may enhance a proper balance of responsibility and authority for land use and transportation planning and control at these locations by different levels of government.

Method of Study. Case studies are going on in six cities to determine the usage of land at freeway intersections and approaches. Studies are being made also of factors in the consumption of space for activities which may locate at these locations. Projections are also being made of demands for the uses by these same industry groups.

Major Findings. Nationally, the interstate highway system will make more urban land available than will be needed by 1970, and for a number of years following. Construction of supplementary local and state freeway systems will increase the supply of land even more. The supply of land for urban growth is more than adequate in many small and some medium size cities. However, the supply of land from the Interstate System for urban growth and development is microscopic about large cities and some medium size cities. The need for local and state freeway systems to increase the supply of land available for large city growth is acute for transportation oriented industries. (EMH)